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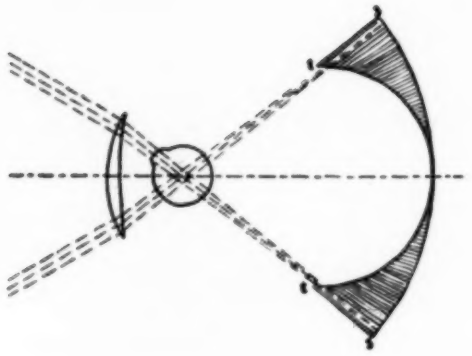

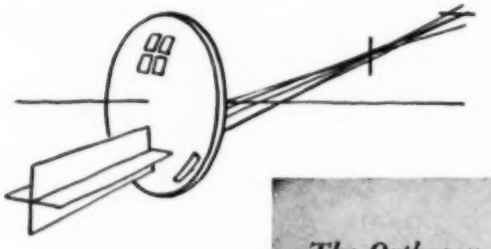

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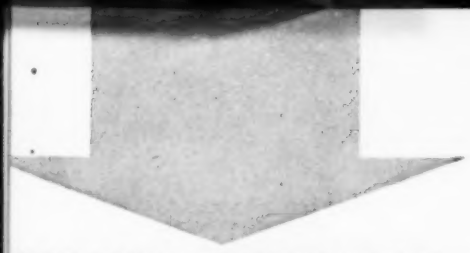

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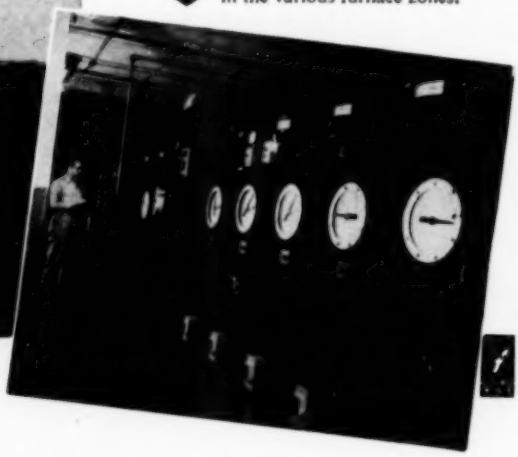

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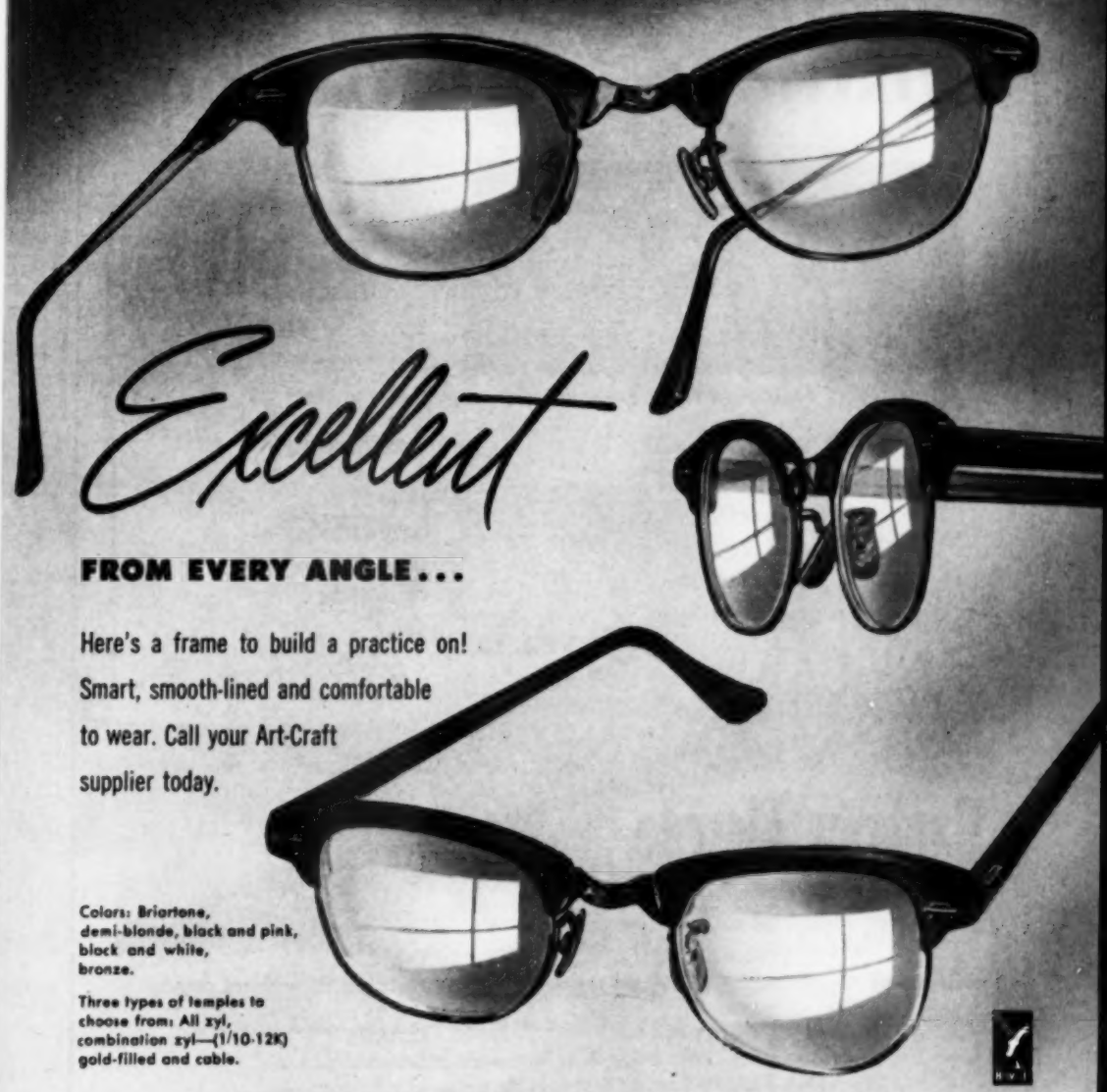

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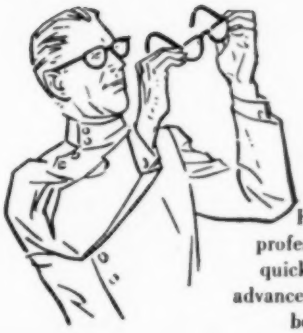

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THE ROLE OF CERTAIN VISUAL PHENOMENA IN ADOLESCENT PERSONALITY ADJUSTMENT*

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I. INTRODUCTION

THE PROBLEM OF THE INVESTIGATION

The problem of this investigation is to obtain measures of vision and of personality adjustment in a group of seventh and eighth grade pupils and to determine if any relationships exist between the two variables selected.

THE PURPOSE OF THE INVESTIGATION

Information as to the relationships between vision and personality adjustment might be of value in the prevention and correction of childhood personality maladjustments. The primary purpose of this investigation is to help provide this information.

THE METHOD OF THE INVESTIGATION

For the purposes of this investigation it was decided that approximately 150 cases would provide an adequate sample. Mr. O. B. Hodges, principal of the Lee County High School, was contacted and asked if he would be willing to have the investigation conducted in his school. The principal agreed that both students and teachers could be expected to benefit from this program. He suggested that the seventh and eighth grades would be the most suitable for testing. There were about 160

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*Read before the annual meeting of the American Academy of Optometry, Rochester, New York, December 6, 1952. For publication in the May, 1953, issue of the AMERICAN JOURNAL OF OPTOMETRY AND ARCHIVES OF AMERICAN ACADEMY OF OPTOMETRY.
This study done under the supervision of Dr. Sherwood C. McIntyre, Head Professor of Psychology. This study was made possible by a grant-in-aid from the Alabama Optometric Association.
†Graduate student. This material was presented as a partial requirement for M.Sc. degree.
‡Optometrist. Fellow, American Academy of Optometry.

pupils in the two grades; they were near the middle of the age distribution in the school, and they were far enough advanced educationally to respond readily to the desired tests.

The four home room teachers were next contacted and the purposes of the investigation were explained to them. It was essential that their cooperation be obtained because a teacher rating of each pupil's personality was desired. The teachers cooperated fully, rated the pupils and collected the parent questionaires.

The tests were administered in a room formerly used as a projection room. The room contained a table and three chairs. The overhead illumination was ideal. All tests were administered between the hours of 1:00 and 3:00 in the afternoon. The two groups in the seventh grade were given the ortho-rater tests first. Standard ortho-rater testing procedures were followed in all examinations. The author administered and scored all tests. At the end of each examination, the scoring card was immediately checked with the Student Profile Templet. The student was then re-tested on any test where a deficiency was indicated. A report of the results of each examination was prepared for every testee's parents. To this report was attached an envelope and a Parent Check List form. This report was given to each testee. He was asked to take these to his parents, request that they complete the form, and return the completed check list in the envelope to his home room teacher. After all seventh grade pupils had received the ortho-rater tests, the California Test of Personality was administered. Here, too, the standard procedures, as outlined for group administration in the manual, were strictly observed.

The same procedures were followed in the eighth grade. A total of 622 tests, check lists, and rating forms were completed within the two groups.

The Teacher Rating Forms were placed in the hands of the teachers after all other tests and check lists had been completed. This was done in order to allow the teachers ample time in which to become fully acquainted with their home room pupils. The teachers were urged to take all the time necessary to evaluate each pupil carefully.

REVIEW OF THE LITERATURE

It is not the function of this investigation to delve deeply into the general fields of vision or personality. At the same time it is desirable to know the incidence of visual defects in our schools.

Numerous studies have been conducted to determine the frequency of visual defects among school children. Despite the variety of testing devices and procedures used, the reported results have been remarkedly

consistent. Such discrepancies as exist can partly be explained by the use of such terms in describing vision as slightly defective, moderately, borderline, and seriously defective. Even so, there can be no room for doubting that a very high proportion of school pupils have seriously deficient vision.

In 1926, Pratt found 52% of the 8,000 pupils tested to have moderately defective and defective vision. About the same time, Collins found 37% of the pupils tested with the Snellen Vision Test falling into the same two categories. Later studies report similar findings. Using clinical testing procedures, O'Shea, in 1945, tested the vision of 1,150 pupils in the Brookfield, Massachusetts, School System. Of those tested, 37% were recommended for immediate professional attention.

In addition to testing vision, some investigators have attempted to explore the connection between vision and general, or some special phase, of academic achievement. One of these studies was conducted in the public schools of Piedmont, Alabama, by Springer. The Telebinocular was used for the visual tests. A teacher rating was used as a measure of academic achievement. Out of 840 pupils tested, 23% were recommended for immediate referral. In addition, 26.5% were of the borderline classification. Springer reported that a significantly higher number of students who passed the visual tests were better students as judged by teacher classification.

It would seem that reading ability particularly would be influenced by the degree of visual efficiency. Numerous studies have been made in this field, but most of these have been restricted to small groups of students or to the relationship of one or two types of visual defects with reading ability.

Witty reported a study of 100 public school pupils in which he attempted to show the relationship of poor reading to factors such as fusion difficulties and muscle imbalances. As a result of this study he concluded that poor readers are not characterized by a higher incidence of visual defects than are good readers, but that correction of defects may improve the reading ability of poor readers and of readers who exhibit no reading difficulty.

Brieland used a projective technique in a study involving all Minnesota pupils in grades 4-12 whose vision made special sight-saving classes necessary. This study involved 250 children and the findings, indicating that the partially sighted reveal more emotionality than the blind, are of significance in this study.

Vision in the pronounced myope is interestingly related to be-

havior and personality by Arnold Gesell. His observations are substantiated in another report by Godard.

Another approach which has been made in an attempt to determine the relationships between vision and personality is the case study method. Two such studies wherein children were observed both before and after visual corrections are reported by Savis and by Orr. After visual corrections, they cite amazing improvements by children in the playground: more independence, more self-assurance, less nervousness, and a much improved attitude toward academic learning.

While many studies concerning child vision have been made, records are meager of those investigations which attempt to measure personality and vision within a normal school group and to seek the connection between them. Maxfield and Fjeld conducted such a study but of a pre-school age group. Probably the study most nearly parallel to the present study was one conducted by Pintner and Forlano to determine whether group tests of the inventory type reveal any difference between children in sight conservation classes and those in regular classes. This study presented the conclusion that partially sighted children on the average show no marked deviation from normal children in certain aspects of personality as measured by group personality inventories. While this statement is possibly justified in considering the aspects of Personality Test results, The Pupil Portraits Tests results seem to indicate significant differences.

Another important factor ignored by Pintner and Forlano is the fact that their subjects were already receiving special treatment designed to compensate, in some measure, for their visual handicaps. Their deficiencies were recognized. They were in sight conservation classes where they were not being called upon to perform beyond their abilities. Such competition as existed in the special classes was with other pupils having similar handicaps—they were not overmatched. It would be expected that this special treatment would eliminate many of the personality difficulties experienced by the usual student with an undiscovered visual defect. For these reasons, it is believed that the present investigation presents a different approach to the problem of vision and personality.

II. REVIEW OF THE INSTRUMENTS USED

The four instruments used in this investigation are the Ortho-Rater, The California Test of Personality, The Teacher Rating Scale, and The Parent Check List. Norms have been established for the first two; they have been generally accepted and used widely; therefore they are discussed only briefly in this paper. The only innovation

presented relative to the standardized tests is the weighted scoring key for the Ortho-Rater. The Teacher Rating Scale and The Parent Check List were originated and used in an attempt to arrive at subjective measures of pupils' personalities.

The Ortho-Rater: The Ortho-Rater is an optical instrument developed and validated over a number of years by the Bausch and Lomb Optical Company. Its primary purpose is that of measuring certain individual characteristics of vision that are important in various types of work. The Procedure given in the manual of Standard Practice for use of the Ortho-Rater was followed closely.

The Ortho-Rater scoring card involves the use of transparent plastic templets which are placed over the card. The Student Profile templet was used in the present investigation. Scores which fall within the opening in this templet are scored as failures according to the norms which have been established. This method places all subjects into two categories—either of passing or failing. This method of scoring is effective for use in screening pupils for visual defects, however it leaves much to be desired when used for research activities, as it does not show the degree of passing or failing. It is therefore impossible to obtain certain types of correlations from the obtained scores.

There are twelve sub-tests in the Ortho-Rater battery with each sub-test yielding a numerical score. What was desired was a method whereby each sub-test could be scored with values running consecutively from lowest to highest. The poorest scores would be the lowest, and the combination of all sub-test scores would afford a composite visual skills score. Since the six acuity scores, the depth score, and the color score, are already usable, nothing was done with them except to add an extra digit for the purpose of scoring the hitherto zero, or unnumbered score on the Ortho-Rater scoring card. This gave all possible Ortho-Rater scores in these sub-tests a numerical value ranging from poorest to best scores.

The four phoria sub-tests presented a different problem because the failing scores were at the two extremes numerically. The method finally adopted was to change the scoring order by renumbering all scores alternating from lowest to highest until the mid-point was reached. This mid-point, being the farthest away from the failing scores, should logically be the best and highest score.

The use of the scoring key permits the conversion of each sub-test score to a score ranging numerically from poorest to best. The total of all the sub-test scores gives a visual skills score which may be compared.

as a totality, with another Ortho-Rater score, or with the score from another type of test.

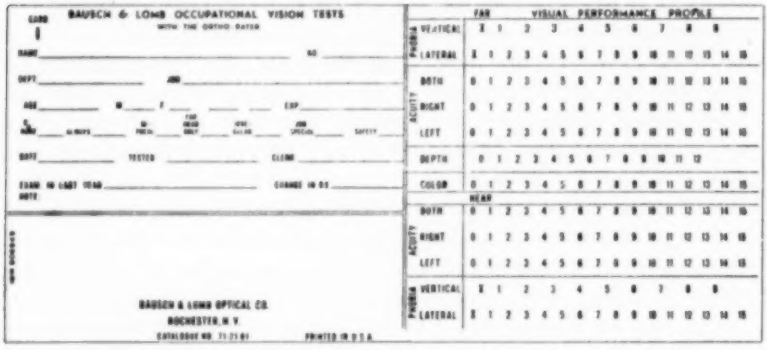

Figure 1. Ortho-Rater Scoring Card

Figure 1 is a specimen copy of the Ortho-Rater scoring card; Figure 2 is a replica of the Ortho-Rater Student Profile Scoring templet, with the circled scores corresponding to the failing scores on the templet; and Figure 3 is the Ortho-Rater weighted scoring key.

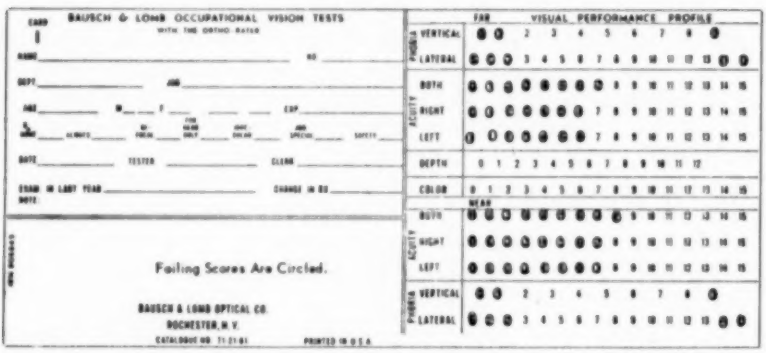

Figure 2. Ortho-Rater Scoring Templet

The California Test of Personality is an attempt to locate and measure certain factors considered highly important in social and personality adjustment. The two sections of the test are those of Self Adjustment based on feelings of personal security and Social Adjustment based on feelings of social security. There are five levels, or forms, of the test which are available. This investigation made use of the Intermediate Series designed for grades 7-10.

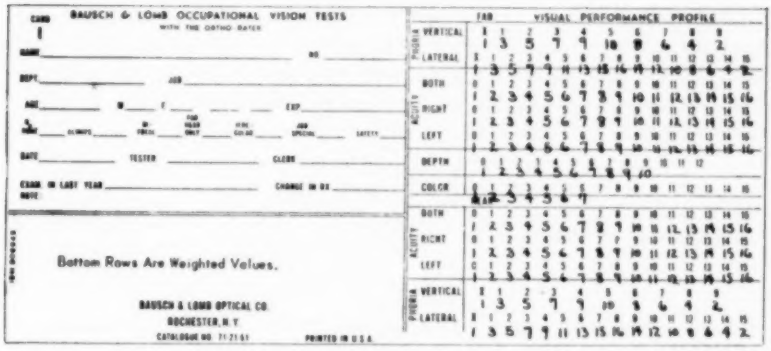

Figure 3. Ortho-Rater Weighted Scoring Key

The Teacher Rating Scale: The writer is under no illusions regarding the simplicity of teacher rating scales. One of the first considerations in the construction of this scale was the selection of the items. What was desired was a listing of problems found among school children which would be symptomatic of maladjustment. Different groups have their own ideas about what constitutes problem behavior, but there is little doubt that problems most frequently observed in Child Guidance Clinics would serve as a good criteria. Usually referrals to such clinics are made upon the recommendation of school authorities and with the parent's consent. The clinician confirms their diagnosis when he accepts the child for treatment. There is therefore a unanimity of opinion that the more serious problems indicative of maladjustment are found in the clinic. The selection of items for the questionnaire was made primarily from a listing of problems found in a study of more than 9,000 cases in five such clinics. Also helpful was a serious ranking of problems by parents, teachers, educator-psychologists, and mental hygienists.

When the Teacher Rating Scale was constructed, the order of weighting was arranged so that the best scores were the lowest numerically. In order to reverse this order, the weighted item values for each individual test were totaled and subtracted from 70 (the worst score possible). This scoring procedure made the best scores the largest and facilitated the comparison of results from this test with other tests.

In order to eliminate response sets among the teachers, the sequences of the ratings were varied throughout the Rating Scale. Personal information about the pupil being rated and the directions to the teachers were placed on the reverse of the Rating Scale. The directions include a

request that the teacher not consult anyone in making her ratings and that she attempt to judge only one item at the time. Space was also provided for any additional comments that the teacher might desire to make regarding a pupil. A specimen copy is shown with the weighted score value for each response.

THE TEACHER RATING SCALE

NOT INTERESTED IN SCHOOL WORK

Has happened Once or twice (2)	Never Happens (1)	Rarely Happens (3)	Nearly always Happens (5)	Frequently Happens (4)

OVER SENSITIVE

Rarely Happens (3)	Nearly always Happens (5)	Has happened Once or twice (2)	Frequently Happens (4)	Never Happens (1)

CHEATING

Nearly always Happens (5)	Frequently Happens (4)	Rarely Happens (3)	Has happened Once or twice (2)	Never Happens (1)

LYING

Frequently Happens (4)	Never Happens (1)	Nearly always Happens (5)	Has happened Once or twice (2)	Rarely Happens (3)

IMPERTINENCE OR DEFIANCE

Frequently Happens (4)	Rarely Happens (3)	Has happened Once or twice (2)	Nearly always Happens (5)	Never Happens (1)

OBSCENE NOTES, TALK, OR PICTURES

Rarely Happens (3)	Nearly always Happens (5)	Never Happens (1)	Has happened Once or twice (2)	Frequently Happens (4)

BULLYING OR CRUELTY

Never Happens (1)	Rarely Happens (3)	Nearly always Happens (5)	Frequently Happens (4)	Has happened Once or twice (2)

MARKED NERVOUSNESS (Can't sit still, fidgets, bites nails, etc.)

Frequently Happens (4)	Rarely Happens (3)	Has happened Once or twice (2)	Never Happens (1)	Nearly always Happens (5)

TEMPER OUTBURSTS

Rarely Happens (3)	Never Happens (1)	Nearly always Happens (5)	Frequently Happens (4)	Has happened Once or twice (2)

UNPOPULAR WITH OTHER CHILDREN

Rarely Happens (3)	Nearly always Happens (5)	Has happened Once or twice (2)	Never Happens (1)	Frequently Happens (4)

UNHAPPY, DEPRESSED

Nearly always Happens (5)	Never Happens (1)	Frequently Happens (4)	Rarely Happens (3)	Has happened Once or twice (2)

GIVES UP EASILY

Has happened Once or twice (2)	Frequently Happens (4)	Never Happens (1)	Nearly always Happens (5)	Rarely Happens (3)

UNSOCIAL OR MARKED WITHDRAWAL

Never Happens (1)	Frequently Happens (4)	Rarely Happens (3)	Has happened Once or twice (2)	Nearly always Happens (5)

EASILY INFLUENCED

Nearly always Happens (5)	Has happened Once or twice (2)	Frequently Happens (4)	Rarely Happens (3)	Never Happens (1)

Figure 5. Teacher Rating Scale.

The Parent Check List: Except in the clinical approach, the possibilities of obtaining information from the parents concerning the child seem to have been largely neglected. This is understandable when we consider that parents are apt to be greatly biased in their responses. Most questions which might be asked of parents are easily identified as being favorable, or unfavorable, to the child. Parents are likely to answer questions especially from strangers, in such a way as to present their child in the best possible light. It would therefore seem likely that any information from parents would have to be obtained without being too obvious—an attempt to get information of significance but to which no great stigma is attached.

In order to present the Check List in an informal manner, the items were presented to the parents as part of a personal letter. Since the report of the visual examination was attached, the parents were informed in the letter that their child had been given the benefit of a school visual examination as part of a program of research work. They were asked to assist in the study by completing the Parent Check List, and returning it to the home room teacher.

The following speciman copy of the parent check list shows the characteristics or problems used. There are 11 good characteristics and 16 bad ones.

To the Parent:

Your child has been given the benefit of a complete visual examination as part of a program of research work being conducted by departments of the Alabama Polytechnic Institute. A short report of the results of this examination is attached. It will be appreciated if you will assist us in this study by completing the following form:

Parents' Name:

Address:

Occupation:

Students' Name:

The following characteristics are frequently found in children. Please read the following list and mark those characteristics which you think apply to your child:

1. Blinks eyes ( )
2. Poor appetite ( )
3. Bites finger nails ( )
4. Restless ( )
5. Rubs eyes ( )
6. Brings friends home often ( )
7. Sleeps poorly ( )
8. Very obedient ( )
9. Daydreams often ( )
10. Takes good care of clothes ( )
11. Quick tempered ( )
12. Does the unexpected ( )
13. Likes school ( )
14. Attends most school activities ( )
15. Very nervous ( )
16. Demands too much attention ( )
17. Very dependable ( )
18. Good loser ( )
19. Dislikes crowds ( )
20. Won't try ( )
21. Easy to please ( )
22. Enjoys home chores ( )
23. Often worries ( )
24. Friendly disposition ( )
25. Stutters ( )
26. Cheerful ( )
27. Often imposed on ( )

When the form has been completed, please place it back in the envelope, seal it, and give to your child to be returned to the home room teacher.

There were 147 Parent Check Lists completed and returned to the writer. Included in this group were 1,007 responses classified as favorable and 378 responses classified as unfavorable. Since the instructions to the parents were that they read the list of characteristics and mark those which they thought applied to their child, every item was scored (considered answered yes or no). The favorable items were answered 3.664 more often than the unfavorable items. The favorable items were therefore given a weighted value of one as opposed to a weighted value of 3.664 for the unfavorable. If all favorable items were marked and no unfavorable items were marked, the highest score possible would be 70. Scoring was accomplished by subtracting the weighted values of unmarked favorable items, and marked unfavorable items, from the possible score of 70.

III. SCORING AND TABULATING THE DATA

The tables which follow present the population involved in the present study, the instruments administered, and a tabulation of the scores obtained. Ortho-Rater tests and Teacher Rating Forms were completed for 159 pupils. The California Test of Personality was administered to 157 pupils, and 147 responses were received from the Parent Check Lists.

On the Ortho-Rater tests there were a total of 42 failures, or 26.4%, within the group. Of these, there were 11 boys and 13 girls in the 7th grade and 7 boys and 11 girls in the 8th grade. Table 3 indicates the classification of failing scores on the Ortho-Rater tests. Table 4 shows the classification of Ortho-Rater scores using the Ortho-Rater weighted scoring key.

The California Test of Personality was administered to all of the pupils who had been given the Ortho-Rater test; however, two of the

records were incomplete and were omitted in the tabulations and statistical calculations. Table 5 indicates the classification of scores on these tests. This classification utilizes the percentile norms provided in the California Test of Personality Manual.

Norms have not been established for the Teacher Rating Scale nor for the Parent Check List. Tables 6 and 7 therefore present only the classification of the raw scores obtained from these two instruments.

TABLE 1
Subjects Classified According to Grade, Age, and Sex

Age Nearest Birthday	Male	Female
SEVENTH GRADE		
11	2	1
12	15	15
13	18	20
14	2	4
15	1	
16	3	
Totals	41	40
EIGHTH GRADE		
12		1
13	11	26
14	21	12
15	5	1
16		1
Totals	37	41

TABLE 2
Tests Administered Classified According to Grade and Sex

	Male	Female	Total
SEVENTH GRADE			
Ortho-Rater	41	40	81
California Test Pers.	40	40	80
Teacher Rating Scale	41	40	81
Parent Check List	40	39	79
EIGHTH GRADE			
Ortho-Rater	37	41	78
California Test Pers.	37	40	77
Teacher Rating Scale	37	41	78
Parent Check List	30	38	68

TABLE 3

Ortho-Rater Failing Scores Classified According to Failing Category, Grade, and Sex.

ORTHO-RATER TESTS	SEVENTH GRADE		EIGHTH GRADE	
Far Point	*Male*	*Female*	*Male*	*Female*
Vertical Phoria	2		2	
Lateral Phoria	2	2	2	2
Acuity Both Eyes	6	8	3	5
Acuity Right Eye	3	5	1	5
Acuity Left Eye	3	5	3	6
Depth Perception	No failing score established.			
Color Perception	No failing score established.			
Near Point				
Acuity Both Eyes	6	5	2	3
Acuity Right Eye	2	2		2
Acuity Left Eye	3	1	3	5
Vertical Phoria	1		1	
Lateral Phoria	3	2	1	1

TABLE 4

Ortho-Rater Weighted Scores Classified According to Grade and Sex

SCORES	SEVENTH GRADE		EIGHTH GRADE		TOTAL
	Male	*Female*	*Male*	*Female*	
146 and above	1			1	2
141 - 145	1	2	2		5
136 - 140	8	3	3	4	18
131 - 135	6	3	10		19
126 - 130	4	6	7	6	23
121 - 125	4	6	6	13	29
116 - 120	6	8	4	3	21
111 - 115	3	4	1	4	12
106 - 110	2			4	6
101 - 105	2	1	2	2	7
96 - 100	1	1		2	4
91 - 95		4	1	1	6
86 - 90	1	1			2
86 and below	2	1	1	1	5
				Total	159

Means 120.79
Standard Deviation 15.54

IV. SUMMARY AND CONCLUSION

The data from the Ortho-Rater test and the California Test of Personality were first analyzed using a percentage method. The higher and lower scoring halves on the California Test of Personality were divided into two groups. A percentage comparison was then made to determine how the upper half differed from the lower half on their various scores in the Ortho-Rater battery. A critical score was obtained for every possible Ortho-Rater category, and the percentage differences favoring the better adjusted group are as follows:

TABLE 5
California Test of Personality Scores by Percentile Norms Classified According to Grade and Sex

California Test Pers. Percentile Norms	Seventh Grade		Eighth Grade		Per Cent
	Male	*Female*	*Male*	*Female*	
99				4	2.5
95		1		2	1.9
90	1	1	1	4	4.5
85	5	6		2	8.3
80	2		5	1	5.1
75	2	7	5	5	12.1
70	1	2	2	2	4.5
65	1		3		2.5
60	4		2	1	4.5
55	1	2	1		2.5
50	1			2	1.9
45	1	1	1	3	3.8
40	2	5	2	3	7.6
35	3	1		2	3.8
30	2	3	3	1	5.7
25	2	3	2	1	5.1
20		2	1	2	3.2
15	4	1	1	2	5.1
10	3	4	5	1	8.3
5	4	1	3	2	6.4
1	1				.6

TABLE 6
Teacher Rating Scale Scores Classified According to Grade and Sex

Scores	Seventh Grade		Eighth Grade		Total
	Male	*Female*	*Male*	*Female*	
66 - 70	1	3	3	5	12
61 - 65	12	10	4	9	35
56 - 60	9	8	13	14	44
51 - 55	5	11	9	7	32
46 - 50	8	6	4	3	21
41 - 45	5	2	2	2	11
36 - 40	1		2	1	4
Total	41	40	37	41	159

Means 55.82
Standard Deviation 7.27

Fifty-one per cent more frequently do pupils with higher personality score on the California Test of Personality reach a visual performance of 10, or better, on the Ortho-Rater scores for acuity, both eyes, far point, than do those with lower personality scores.

Fifty-nine per cent more frequently do pupils with higher personality scores on the California Test of Personality reach a visual performance of 10, or better, on the Ortho-Rater scores for acuity, right

TABLE 7
Parent Check List Scores Classified According to Grade and Sex

SCORES	SEVENTH GRADE		EIGHTH GRADE		TOTAL
	Male	*Female*	*Male*	*Female*	
66 - 70	3	3	7	4	17
61 - 65	11	5	11	10	37
56 - 60	9	11	5	12	37
51 - 55	6	8	2	2	18
46 - 50	8	5	2	6	21
41 - 45	1	4	1	4	10
36 - 40	2	3			5
31 - 35					
26 - 30			2		2
Total	40	39	30	38	147

Means 56.4
Standard Deviation 8.46

eye, far point, than do those with lower personality scores.

Fifty-one per cent more frequently do pupils with higher personality scores on the California Test of Personality reach a visual performance of 10, or better, on the Ortho-Rater scores for acuity, left eye, far point, than do those with lower personality scores.

Sixty-five per cent more frequently do pupils with higher personality scores on the California Test of Personality reach a visual performance of 7, or better, on the Ortho-Rater scores for depth perception, far point, than do those with lower personality scores.

Forty-six per cent more frequently do pupils with higher personality scores on the California Test of Personality reach a visual performance of 6 on the Ortho-Rater scores for color perception, far point, than do those with lower personality scores.

Thirty-seven per cent more frequently do pupils with higher personality scores on the California Test of Personality reach a visual performance of 10, or better, on the Ortho-Rater scores for acuity, both eyes, near point, than do those with lower personality scores.

Ninety per cent more frequently do pupils with higher personality scores on the California Test of Personality reach a visual performance of 11, or better, on the Ortho-Rater scores for acuity, left eye, near point, than do those with lower personality scores.

The accumulated data were also analyzed using correlation procedures. The following results were obtained:

The linear correlation of the combined Parent Check list scores and the Teacher Rating Scale scores with the weighted Ortho-Rater

scores is .216. This correlation is significant at the 1% level of confidence.

The linear correlation of the California Test of Personality scores with the weighted Ortho-Rater scores is .109. This correlation is not significant.

The linear correlation of the Parent Check List scores with the Teacher Rating Form scores is .444. This correlation is significant at the 1% level of confidence.

The biserial correlation of the combined Parent Check List scores with the pass or fail Ortho-Rater classifications is .162. This correlation is significant at the 5% level of confidence.

The biserial correlation of the California Test of Personality with the pass or fail Ortho-Rater classification is —.039. This correlation is not significant.

The biserial correlation of the Parent Check List scores with the pass or fail Ortho-Rater classifications is .159. This correlation is significant at the 10% level of confidence.

The biserial correlation of the Teacher Rating Scale scores with the pass or fail Ortho-Rater classifications is .073. This correlation is not significant.

The preceding summary, as regards the percentage treatment of the data obtained from the California Test of Personality and the individual visual skills tested in the Ortho-Rater battery, would appear to permit only one conclusion. That being, for the present group of scores, there are impressive percentage differences favoring the pupils who have higher visual scores and who also score higher on the personality tests. These percentage differences range from 37% to 90%.

The writer is not prepared to state that one attribute is the cause, the other attribute the effect. While our original hypothesis assumes a connection between personality adjustment and vision, the fact that good adjustment and good vision are more often found together does not prove that one causes the other. However, when considered logically, vision would appear more likely as the causative factor. Vision is hereditary, an innate attribute varying in efficiency among individuals but with difinite limits beyond which it can not be modified. On the other hand, personality is an attribute which can be influenced greatly both by physical and environmental factors. We speak of molding personality in a child because we recognize that favorable physical and environmental factor may result in a better personality adjustment.

The analysis of the data by the method of correlations permit no such clear cut conclusions as are afforded by the percentage method. For

instance, the non-significant biserial correlation between the California Test of Personality and the pass or fail Ortho-Rater classifications might seem to discredit the conclusions already stated until we consider the following facts. The percentage method included two Ortho-Rater skills scores (color and depth) which were omitted in the correlation method and omitted four scores (lateral and vertical phoria at near and far points) which could not be utilized by the percentage method. The correlation was increased .148 when the California Test of Personality was correlated with the weighted Ortho-Rater scores, although the obtained correlation was not significant enough to discount chance factors.

The linear correlation of .444 between the Teacher Rating Form scores and the Parent Check List scores would appear to indicate that they both measure some of the same things. That they appear to afford a higher correlation when used together is demonstrated in the biserial correlation. The combined Parent-Teacher scores correlated with the pass or fail Ortho-Rater scores is .162. The combined scores correlated with the weighted Ortho-Rater scores is .216. These correlations are significant at the 5% and 1% level of confidence respectively and cannot therefore be ascribed to chance fluctuations in random sampling.

The writer therefore recommends that this investigation be repeated on another sample in order to further substantiate the following tentative conclusions:

1. Good vision and good personality adjustment are found together in school children more often than poor vision and good personality adjustment.
2. Vision is logically a causative factor.
3. Consequently, good vision may be expected to exert favorable influences upon personality adjustment in school children.

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ACCOMMODATIVE LEVELS UNDER CONDITIONS OF ASYMMETRIC CONVERGENCE*

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INTRODUCTION

When an individual views an object located in the mid-sagittal plane, he must converge symmetrically and the accommodative stimulus to each eye is the same. (Figure 1a.) However, if he views an object not in the mid-sagittal plane, convergence is asymmetric with the object at a different distance from each eye, and therefore presenting unequal accommodative stimuli to each eye. (Figure 1b.) The inequality between stimuli for objects in these para-sagittal planes increases as the point approaches the plane of the eyes and also as the distance from the mid-sagittal line increases. (Table 1.)

It is the purpose of this study to determine the accommodative behavior of the eyes under asymmetric conditions of fixation, and in particular to determine if a difference in the accommodative levels of the two eyes can exist.

Contradictions as to the binocularity of accommodation appear throughout the literature. Duke-Elder states, all the evidence goes to show that if any part of the ciliary muscle contracts in life, it contracts equally all around: moreover, if one muscle contracts the muscle in the other eye acts equally and simultaneously in all ordinary conditions. Hess and Neumann, for example, found that in the normal individual it was possible to compensate for a difference in refraction between the two eyes of only 0.12 D.[2]

Zoethout[3] also states that innervation to accommodation is always bilateral and cites Donders as well as Hess and Neumann. Zoethout does, however, report an instance of binocular reading by Fisk with a one diopter lens before one eye. The ability to respond to unequal accommodative stimuli of one and one-half diopters is reported by Grimm.[3]

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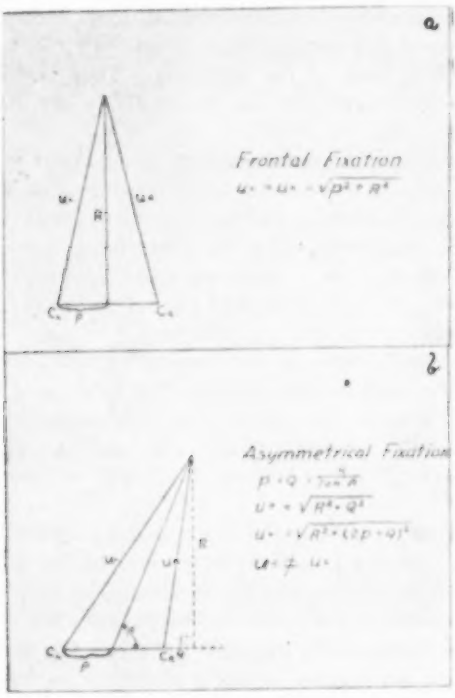

Fig. 1a. Diagrammatic representation of symmetrical convergence.
Fig. 1b. Diagrammatic representation of asymmetric convergence.

TABLE I

20 cm.		12 cm.	
Angle	Δ Ac	Angle	Δ Ac
5°	0.14D.	5°	0.35D.
10°	0.27D.	10°	0.70D.
15°	0.28D.	15°	1.05D.
20°	0.48D.	20°	1.27D.
25°	0.56D.		

TABLE I: Differences in Accommodative Stimuli in Asymmetric Convergence.

The neurological data concerning accommodation are insufficient to either demand or preclude monocular responses of the accommodation.[7] Although Zoethout[9] states that accommodative innervation is always bilateral, Wolff[8] suggests the possibility of unequal innervation.

Recently, Stoddard and Morgan[6] have attempted to study the

problem systematically. They report that some individuals are able to exhibit monocular accommodation of one-half diopter greater than the accommodative level of the other eye. They further report that the average ability to accommodate unequally is less than one-quarter diopter.

The possibility of unequal accommodation needs to be more fully explored since clinical procedures are often based on its presence or absence. In accommodative-rock training, for example, binocularity of accommodation is assumed. On the other hand, Harmon[4] bases his theory of the etiology of anisometropia on unequal accommodation brought about by the poor posture of youngsters which, in effect, places fixation points out of the mid-sagittal plane.

This experiment measures the responses of the two eyes to unequal accommodative stimuli brought about by the location of fixation targets in para-sagittal planes, creating asymmetric convergence. These conditions are normally encountered in daily activity and permit close experimental control of conditions combined with habitual subject response.

The task of measuring the accommodative levels of the eyes in asymmetric convergence poses a problem in technique and instrumentation. To be of any significance, the measurements must be made separately and simultaneously for each eye without disturbing or interfering with binocular fixation. In addition, the measuring device must in no way impose any restrictions on the accommodative levels of the eyes. In other words, the subject must always accommodate to see the binocular fixation target clearly and never for the measuring device. Further, the calculated theoretical difference in the accommodative stimulus for an object located in a frontal plane 20 cm. from the eyes and 20 degrees from the median plane is less than 0.50 D. and becomes still less as the fixation plane moves further away from the eyes. Therefore, the measuring technique must be highly sensitive.

The method of stigmatoscopy, using a specially constructed haploscope, was selected to fulfill all of the above requirements. In stigmatoscopy, the subject fixates binocularly and at the same time a very tiny light spot (stigmatoscopy target) is superimposed on the visual axis of each eye by use of half-silvered mirrors. These stigmatoscopy targets are moveable along optical benches and are used to locate the far point (conjugate focus to the retina) for each eye without disturbing binocular vision. The stigmatoscopy light spots are smallest and clearest when exactly conjugate to the retina. At any other location they are out of focus.

APPARATUS

The instrument used in this experiment is a haploscope modified to allow asymmetric convergence (Figures 2 and 3). (For exact details see

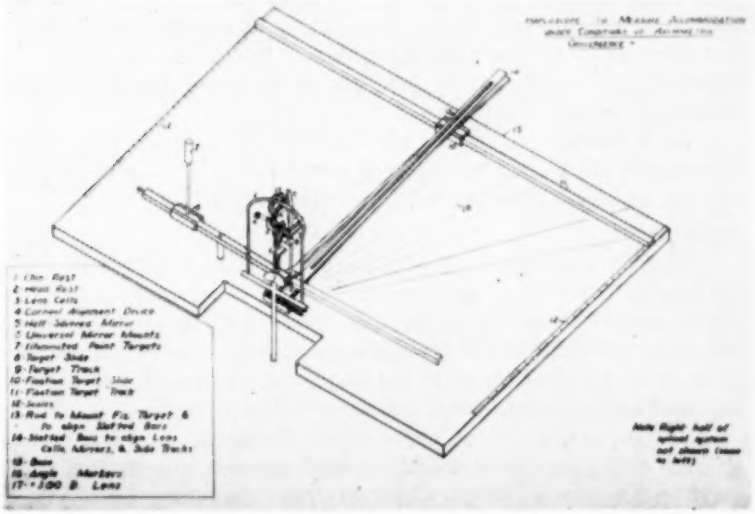

Fig. 2. Modified haploscope used to meaure accommodation under conditions of asymmetric convergence. See Appendix for description

Appendix.) Green gelatine filters, Wratten 61, of maximum transmission at wave length 525 mμ. are mounted directly in front of the eyepieces so that all targets are seen through them. The two stigmatoscopy targets (Figure 2, No. 7) are holes in aluminum foil illuminated from behind by American Optical Company No. 20 retinoscope bulbs operated at one volt. The holes are one-tenth millimeter in diameter. The fixation target is an inked cross on white paper obliquely illuminated so that the grain of the paper is visible in exact detail and serves to indicate critically when the slightest blur (lack of retina-paper conjugacy) occurs. (Figure 2, No. 13.)

PROCEDURE

Two trained subjects, B. B. B. and L. A., with normal visual acuity were used. The subject was seated and aligned with the corneal aligning devices, head clamped in position with chin rest and head clamps (not shown). The subject was instructed to maintain fixation on the cross and grain of the paper, keeping it clearly visible at all times. At the same time, one of the stigmatoscopy targets was visible and, by

the method of adjustment, was set by sliding to its point of greatest clarity. The other stigmatoscopy target was then exposed and similarly set. Each target was presented five times, the order being R L L R. After each series of monocular measurements with binocular fixation, both stigmatoscopy targets were exposed simultaneously to make certain that they could be seen clearly together with the fixation target, the stigmatoscopy targets having been set at the mean positions for the monocular settings.

Each session consisted of settings with the fixation target in the mid-sagittal plane and at positions of asymmetry at one fixation distance (12 cm. or 20 cm.), on one side only (right or left).

RESULTS

In each case where apparent differences in accommodation are found for fixation in the mid-sagittal plane, the data for fixation in the para-sagittal planes are corrected for this "zero" reading. For L. A. the maximum difference found for mid-sagittal fixation is 0.45 D. with a mean of 0.25 D.; for B. B. B. the maximum difference found for mid-sagittal fixation 0.41 D. with a mean of 0.20 D.

On the graphs below, experimental points are shown as squares through which are drawn solid lines while theoretically expected points are shown as crosses through which are drawn the broken lines.

Table II presents the mean differences in accommodation between the right and left eyes as a function of the angle of asymmetry and the

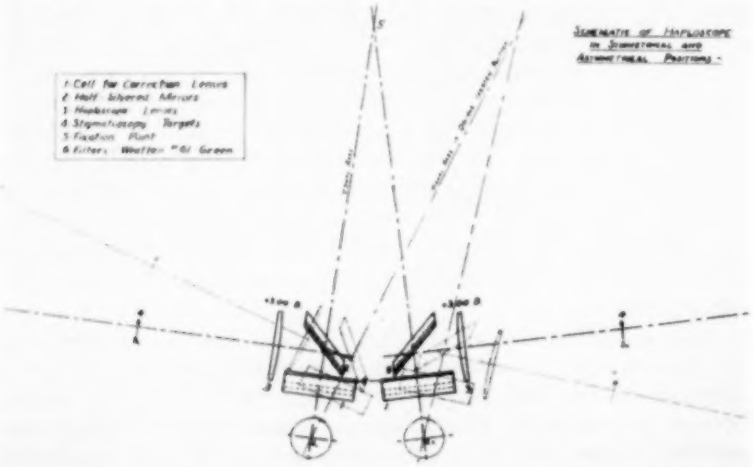

Fig. 3. Schematic of haploscope showing optical elements in symmetric and asymmetric positions of fixation.

TABLE II

Angle - L.	ΔA	$\sigma \Delta A$		Angle - R	ΔA	$\sigma \Delta A$
5°	.71 D.	.08 D.	12 cm. BBB	5°	.85 D	.11 D.
10°	1.11	.08		10°	1.20	.08
15°	1.94	.05		15°	1.78	.08
20°	2.91	.02		20°	1.47	.09
			20 cm. BBB			
5°	.86	.04		5°	.59	.08
10°	.97	.07		10°	.52	.06
15°	1.09	.04		15°	.59	.04
20°	1.62	.04		20°	1.18	.07
25°	.62	.05		25°	1.05	.08
			12 cm. LA			
5°	.38	.06		5°	.10	.08
10°	.70	.09		10°	.36	.09
15°	.87	.06		15°	.53	.03
20°	1.26	.06		20°	.35	.07
			20 cm. LA			
5°	.53	.09		5°	.07	.04
10°	.83	.07		10°	.27	.02
15°	.13	.08		15°	.22	.05
20°	.84	.14		20°	.19	.02
25°	.84	.08		25°	.59	.05

TABLE II: Differences in Accommodation (Δ A) and Standard Deviations of Differences ($\sigma \Delta$A)

fixation distance. The standard deviations of the differences are also given.

Figures 4 and 5 graphically represent the differences in accommodation as a function of the angle of asymmetry for each subject at fixation distances of twelve and twenty centimeters respectively. Each point represents the combined data for the case where the eyes were verted to the right and for the case where the eyes were verted to the left. Figure 6 presents the data for the two subjects averaged at each of the fixation distances. At all times, the eye closer to the target is at the higher level of accommodation.

DISCUSSION

The experimental results indicate that unequal accommodation does exist under conditions of asymmetric convergence. The curve for experimentally determined differences in accommodation between the two eyes has the same general shape and slope as the mathematically predicted curve (Figure 6). The obtained differences between the two eyes are significant at better than the 0.01 level of confidence.

The results of this study are seemingly in contradiction with those of Stoddard and Morgan,[6] who report that some people are capable of 0.50 D. monocular accommodation, but that most can only exhibit less than 0.25 D. There is however, a fundamental difference in experi-

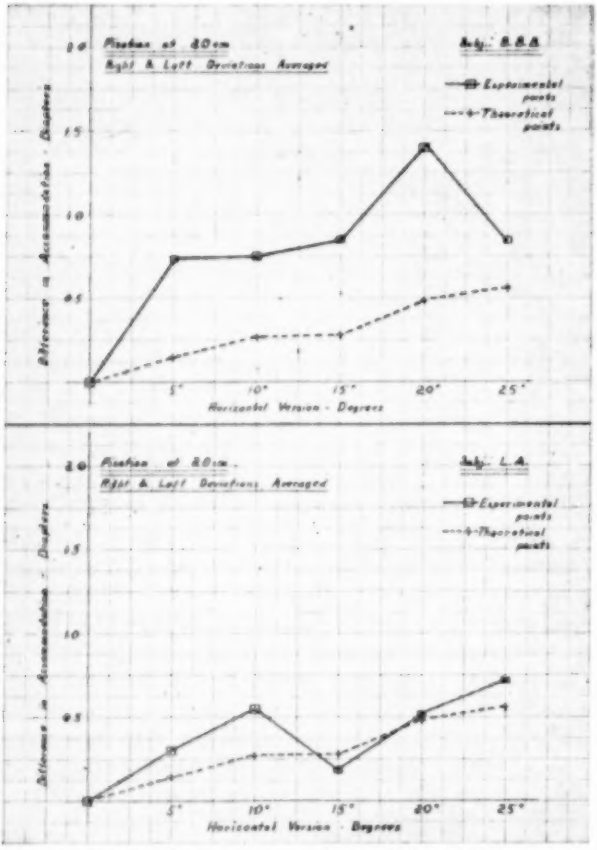

Fig. 4. Differences found at 20 cm. for two subjects, right and left deviations averaged.

mental conditions which makes the two studies non-comparable. Stoddard and Morgan used a haploscopic arrangement with fixation in the mid-sagittal plane and stimulated unequal accommodation by use of lenses. The present experiment uses asymmetric convergence as the stimulus to unequal accommodation.

The thought that asymmetric convergence mediates unequal accommodation has been offered by others. Wolff[8] cites that the Edinger-Westphal nucleus is single in lower forms and paired in the higher apes and man and "this may be associated with the fact that when we look at an object which is not equidistant from the two eyes, each eye

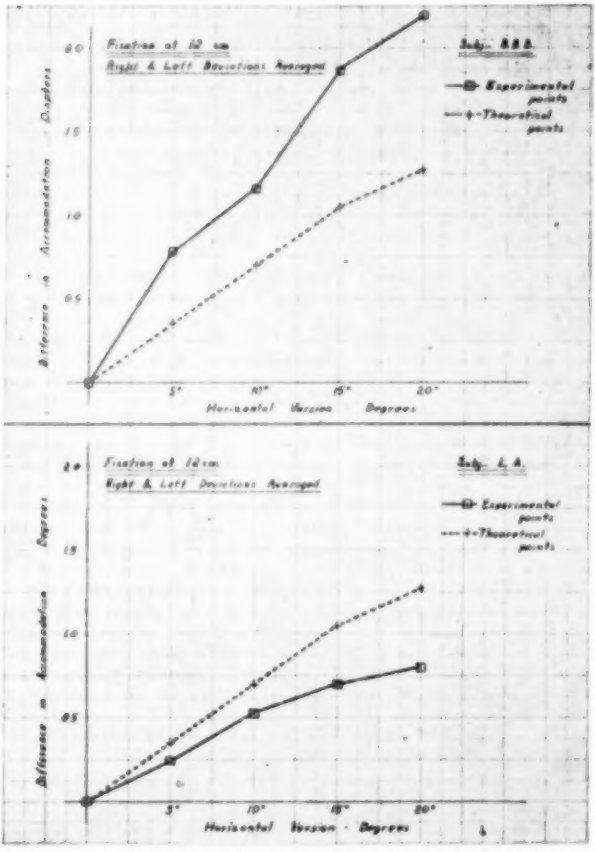

Fig. 5. Differences found at 12 cm. for two subjects, right and left deviations averaged.

requires to focus differently to see the object clearly."

D. B. Harmon[4] also uses this same premise to develop his theory of the etiology of anisometropia. He postulates that a child forced to assume an asymmetric, warped posture due to poor lighting or other physical environ conditions, must perform with one eye closer to the reading material and develops a pattern of identifying closer with one eye than the other. This pattern of identifying closer with one eye becomes the child's habitual way of seeing. Harmon's theory indicates that the child converging asymmetrically accommodates unequally, but in the proper amount by each eye to see clearly with each

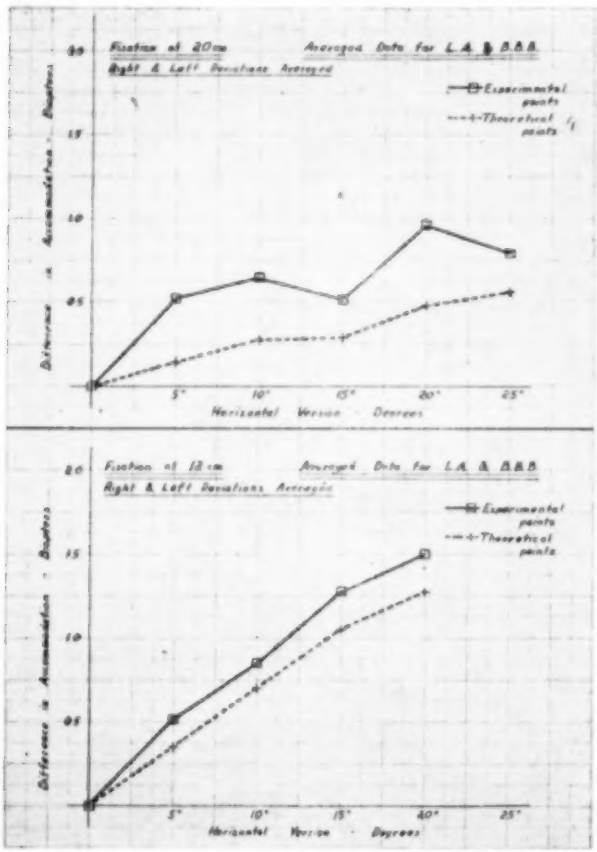

Fig. 6. Data for two subjects, averaged at each fixation distance.

eye. It is only when we arbitrarily refract this child in a mechanically centered median plane that we measure a difference in refraction. Then we impose unequal lenses on this child and send him back to his asymmetrically located task with the increased burden of the unequal lenses as well as the unequal distances to overcome.

The possibility of asymmetric convergence having properties unique from symmetric convergence is also mentioned by Kenneth Ogle.[5] Using an experimental device very similar to that of the present study, Ogle found that the sizes of the ocular images are affected by asymmetric convergence. On the basis of the geometry of asymmetric convergence,

the angular size of the object is larger for the closer eye. Ogle found that the ocular image of the closer eye is indeed larger than the ocular image of the further eye, but the magnitude of this difference in size is far less than expected. There seems to be a compensatory mechanism instigated by asymmetric convergence which decreases the expected difference in sizes of the ocular images of the two eyes. It may be noted that the results of the present study, when used to compute size changes due to nodal point shifting during accommodation, produce changes in the proper direction, but approximately one-tenth the magnitude of the size changes measured by Ogle.

It may be further noted at this point that a statement by Ogle that he found little or no difference in accommodation between the two eyes seems at first glance to refute the present study. Closer scrutiny shows this not to be the case. The apparatus used is remarkably similar in appearance. Ogle used the haploscope arms to produce the asymmetric convergence and instructed the subject to fixate the stigmatoscopy target. No critical determination of the conjugacy of the binocular fusion target was attempted. The present experiment uses the reverse situation. The subject fixates the binocular asymmetric target critically and the haploscope stigmatoscopy targets are used as measuring devices to locate the conjugate plane of each eye. A pair of eyes seems to show remarkable adaptability to the task at hand, hence conclusions may be drawn only after establishing what is being measured and what is being controlled.

The results of the present study, while statistically significant, are not conclusive in and of themselves since they represent data taken on only two subjects. It is therefore recommended that the study be extended to a greater population. It is further recommended that the study be repeated using white light in order to determine the effect of normal chromatic abberation of the eye on accommodation with asymmetric convergence.

SUMMARY AND CONCLUSIONS

The effect of asymmetric convergence on accommodation was investigated on two subjects using a modified haploscope and the method of adjustment. It may be concluded that:

1. Unequal accommodation between the two eyes does exist under conditions of asymmetric convergence.
2. The eye closer to the target always accommodates more than the other eye.
3. The differences in accommodation very closely approximate the mathematically calculated differences in accommodative stimulus due to the unequal fixation distances.

APPENDIX

APPARATUS

For the purpose of this study, it was necessary to construct a haploscope which allowed for varying the lateral location of the fixation target without disturbing the optics of the system. This was achieved by making the right and left sides independent, each rotating around a center of rotation that corresponds to the center of rotation of the respective eye. Slotted guide bars automatically converge the two sides on the fixation target in any position.

The fixation target is mounted on the fixation target slide (Figure 2, No. 10) which is movable laterally on the fixation target track (Figure 2, No. 11) a distance of 22 inches to either side of the mid-sagittal plane. The entire fixation target track is movable along the mid-sagittal line between the limits of 12 to 55 centimeters from the plane joining the apices of the two corneae when the eyes are directed straight ahead. The position of the fixation target is specified in terms of the distance along the mid-sagittal line from the plane joining the corneae in direct gaze (Figure 2, No. 12) and angular distance from the mid-sagittal plane measured at the mid-point of the line joining the centers of rotation of the two eyes (Figure 2, No. 16).

The haploscopic target track (Figure 2, No. 9) is permanently mounted so that the stigmatoscopy targets (Figure 2, No. 7) are always perpendicular to the visual axes (Figure 3). The slotted guide bars (Figure 2, No. 14) and haploscopic target tracks of each side rotate as units about the respective centers of rotation of the eyes. The lens cells (Figure 2, No. 3) and mirror (Figure 2, No. 5) of each side are mounted on the slotted guide bar and rotate about the same common center as the guide bar. Thus, in any target position, the slotted bars maintain alignment of the instrument such that the lens cells are perpendicular to the line of sight and the stigmatoscopy targets are seen through the half silvered mirrors at the point of fixation. This arrangement maintains constant vertex distance of the Tillyer correction lenses and fixation through the centers of these lenses, thus eliminating errors due to change of vertex power or oblique incidence.

The correction lens cells are constructed for A. O. Tillyer trial lenses, maintaining the proper separations.[1] Proper vertex distance is maintained by corneal aligning devices (Figure 2, No. 4). The half silvered mirror is an equal reflection-transmission mirror mounted in a universal mounting to permit exact adjustment of position. The 3D plano convex haploscope lenses (Figure 2, No. 17) are mounted 7 centimeters from the corneae with the convex sides toward the observer. These lenses serve simply to optically shorten the stigmatoscopy target distance and may be removed for measurements at close fixation distances, when they are not needed. The round stigmatoscopy targets are 1/10 millimeter diameter holes in opaque foil and are matched. These targets are illuminated from behind by A. O. retinoscope bulbs No. 20 operated at one volt.

Head position is maintained by an adjustable forehead and chin rest (Figure 2, Nos. 1 and 2). Head clamps, not shown, are used to eliminate head movement in the instrument.

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SIGNIFICANT OPINION BY SUPREME COURT

Stanley J. Orloff, a psychiatrist who was inducted into the Army and continues to serve as an enlisted man, though he holds a degree as a doctor of medicine, will not be released on a writ of habeas corpus, the United States Supreme Court decided on March 9, 1953, in settling his action against the commandant at Fort Lawton, Washington.

In an opinion written by Justice Jackson, the court settled three questions, namely (1) whether a medical specialist has a right to be used as such in the Armed Forces, (2) whether the petitioner has a right to a commission, and (3) whether, by habeas corpus, one may be discharged because of his assignment.

The court said in part: "To separate particular professional groups from the generality of the citizenship and render them liable to military service only because of their expert callings and, after induction, to divert them from the class of work for which they were conscripted

would raise questions not only of bad faith but of unlawful discrimination. We agree that the statute should be interpreted to obligate the Army to classify specially inducted professional personnel for duty within the categories which rendered them liable to induction."

But the court would not say that Orloff should be discharged if not commissioned. There was cause for refusing him a commission, it was held. "The petitioner," the majority opinion stated, "appears to be under the misconception that a commission is not only a matter of right but is to be had upon his own terms." The court further pointed out that "if he is the first to be denied a commission, it may also be that he is the first doctor to haggle about questions concerning his loyalty." Orloff, the record showed, had refused to answer certain questions bearing on his loyalty.

Asserting that each doctor cannot be entitled to choose his own duties or assignments and that "judges are not given the task of running the Army," the court added in part: "Discrimination is unavoidable in the Army. Some must be assigned to dangerous missions: others find soft spots."

The foregoing material from the Selective Service headquarters in Washington has an impact upon optometry as well as medicine.

CAREL C. KOCH

VIRGINIA HUCK LEAVES JOURNAL

After putting our April issue to bed, Virginia Huck handed in her resignation. During the past eight years she has served as our Editorial Assistant. Here she has done her work well and has gained many many friends in optometry both within and outside of the Academy. We in the Journal office are going to miss her cheerful personality and her real skill with our language. We are going to miss her too at our Academy meetings where she covered the convention for the Journal and also helped register the members and where she took general charge of "things." Many of our members who had gotten to know her well will miss her too.

Miss Huck is leaving to complete her work for her Masters in American Studies under a national journalism scholarship she has been granted by Theata Sigma Phi. This work will be taken at the University of Minnesota. In addition she is just now completing a special two year writing assignment during which she has written the history of the Minnesota Mining and Manufacturing Company. (St. Paul, Minnesota—Scotch Tape.) This book will be published later this year. She plans to devote her writing career to similar industrial biographies in the future. Good luck to you Virginia—The Academy wishes you well.

CAREL C. KOCH

SPECIAL REPORT

BUILDING A PRACTICE IN A SMALL TOWN*

John T. Collins†
Lewisburg, West Virginia

After fifteen years in the City of Charleston, West Virginia, I pulled up stakes and started again in a little country town. To decide my new location I made a detailed study of West Virginia, checking population, industries, highways, railroads and the location of optometrists and oculists. The prosperous mining towns were ruled out because I did not think them pleasant places to live. Other places were avoided as too rural, too mountainous, or too inaccessible. Towns within the trading areas of cities were avoided.

In the last census, West Virginia had a population of 1,901,974. It had twelve municipalities of ten thousand or over, and eighty-four communities between 1,000 and 10,000. Many optometrists think that 10,000 is the smallest size town that will support a practice but I chose from the small places, going by county population rather than size of town.

There were 113 optometrists in the state by the last BLUE BOOK, making a population of 16,000 plus, to a practitioner. Greenbrier County, an agricultural county of 30,000, without an optometrist, and with two eye, ear, nose and throat men, looked like a good choice. Of its five towns between ten and fifteen hundred, Lewisburg, the county seat, looked the best, although it was not on a railroad and had no industries—had not a single smoke stack. An advantage that offset the lack of a railroad was its location at the crossing of two highways, State Route 219 North and South, and National Route 60 East and West. To offset the lack of industries, there are two schools: a boys military school and a small junior college for girls. These schools probably mean as much financially to the community as a small factory and infinitely more in making a nice little town. Lewisburg's population of fourteen hundred (not counting the students) is roughly divided into eight hundred white and six hundred colored. This high percentage of negroes applies only in the towns as very few negroes live in the country in this section.

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To give an idea of the activities of the town: there are three dentists, six attorneys, three general practice physicians, one osteopathic physician, two eye, ear, nose and throat physicians, two chain grocery stores, five local groceries, two feed stores, one undertaker, two hardware stores, two drug stores, two dry cleaning shops, three barber shops, two men's clothing stores, two women's clothing stores, two beauty shops, one builders' supply company, one furniture store, three garages, six filling stations, three small hotels, one larger hotel (32 rooms), and about six homes for tourists. Business transacted is among townspeople, students, farmers and some few tourists. The percentage of widows and retired people in town seems to be unusually high.

Greenbrier County is best known for its limestone-bluegrass plateau (The Big Levels) which supports prosperous grazing farms. The greater part of the county, however, is quite rough and mountainous with marginal small farms. High ranges of the Alleghenies with pasture land and forest occupy the section east of the Greenbrier River. In the western end are more mountains covered with forests and underlain with coal deposits. There are a number of small, busy mining towns and Rainelle with its large lumber mill. The main line of the Chesapeake and Ohio Railroad skirts the southern edge of the county and branch lines serve the coal and lumber fields and the river valley. A local bus line runs from Ronceverte to Lewisburg and White Sulphur Springs, making the round trip in two hours.

After deciding on a county and town, the next move was to find a suitable location already built, as building was impossible in war time. What I had in mind was a house big enough and suitably arranged to contain both office and home. In the older section of Lewisburg were a number of large old-fashioned houses. In the newer part of town were small modern homes. Real estate agents gave me a few prospects but the best one came through a friend. He remembered visiting in a home that seemed suitable. It took a good bit of tracing to find the owner who had moved away. This location seemed ideal, being located on the main street which is also U. S. Route 60, and three blocks from the business section. It was a location which could easily be found by anyone and yet it was in a pleasant residential area. When I saw it, I knew my search was over, although the floor plan was not at all what I wanted. I first saw it in the morning, looked at it again in the afternoon, and closed the deal that evening. Although built in the 1830's the old house was sound as a drum. It contained ten rooms, but I could not work two of the rooms out for an office without spoiling the liveability of the house. But inside the ell and facing the side street was a porch that I

thought could possibly be built into an office.

At this time I made my first friends in Greenbrier: the former owner who said that he was going to send me enough work from his town to pay for the house, the insurance man who had located the owner for me and who found me a painter, the lawyer who checked the title for me and suggested a contractor, and THE GREENBRIER INDEPENDENT. I sent in a subscription to this weekly paper and added a note to the effect that I had bought the old McWhorter place and planned to move to Lewisburg to practice optometry as soon as I could finish the necessary remodeling. THE INDEPENDENT, of course, published this in their next issue.

The contractor was located and tentative plans sketched out. He was quite apprehensive about attempting any construction of this nature in war time although farmers were able to get necessary work done. Mr. Van Sickler, the lawyer, contacted the local rationing board who referred us on to the Regional War Production Board. They wanted reasons for undertaking the building, plans, lists of material needed and and copies of contracts.

Then the contractor said he could do nothing with the porch. It would have to come down and the office built in the same location. I made scale models of all of my equipment and jockeyed them about on scale drawings until I had worked out the best possible arrangement for the available space. Refracting room and visual training room were planned next to the house for controlled light. Waiting room and combined lab and office were to be on the outside for air and light. The office should contain the desk, files and cabinets. The lab would consist of a small work bench with hand edger, zyl heating cones, vertometer, pliers, screwdrivers, etc. A lavatory was located between the office and the waiting room.

In my application to the War Production Board I said nothing about wanting to make a desirable change but stressed the fact that the whole Greenbrier Valley was without the services of an optometrist, that optometry was a vital health service, that the inhabitants who were workers on farms, forests, and in mines and lumber mills, had to go great distances for this necessary service on tires that were thin and gasoline that was scarce. When the application came back from Washington, approved, these paragraphs were encircled with red pencil and were evidently the reason for the approval. Armed with proper priorities, the contractor started work but it was very difficult and we had to make many changes and substitutions.

Work was completed the first of December, 1944, so we set the

moving date in the middle of January, at the end of my daughters' school term. Moving day was just between a blizzard and a sleet storm so we got a real introduction to the winter climate of this high (for the East) country.

Again I wrote a little note to the INDEPENDENT, asking them to change the address of my subscription and added that I had moved in and was opening my office. They printed a note to this effect and added a cordial paragraph of welcome. I did not have a formal opening—did not set an opening date—no flowers or ballyhoo. I just arranged the equipment according to plan and sat down for what I figured was the long wait. The office opened on a pleasant side yard and I could see the snow and bare trees. There were sheep and cattle to watch at times. This was rather a nice contrast to the *bare brick* walls and slush and dirt seen in the winter from former offices. I had a bird feeding shelf built outside the window and enjoyed feeding and watching birds. I made a list of thirty-four different kinds of birds that came to the shelf that winter.

There are six weekly newspapers in the area and in three of them I had inserted a two-inch, two-column announcement to run for four weeks. The other towns I left as controls so I could tell if the newspaper announcements were really effective. These announcements cost fifty cents an issue, a total of twelve dollars. Then I had two hundred announcement cards printed. One hundred of these went to friends and to the business contacts I had made here in Lewisburg: contractor, lawyer, plumber, electrician, furniture store, insurance agent, etc. The other hundred I sent to names picked out of the phone book for Monroe County, a strictly agricultural area to the south of us, and in which I did not run announcement in the paper.

I had a little sign painted and hung from a wrought iron bracket from a post in the front yard. On it was my name and the word "optometrist" in letters two inches high.

All my professional life I had been explaining just what is an optometrist, the difference between an optometrist and an oculist, etc., and had grown very tired of it—so I thought I would try it without any explanations. There had never been an optometrist located in the valley although several had tried stopping at the hotel for one day a week and there had always been several medical eye, ear, nose and throat men in the area. There was considerable confusion at first. All kinds of cases: ears, sinusitis, sore throats, head noises, everything. One woman asked me if I treated ears, and I said, "No, all I know is eyes," and trying to be funny added, "and sometimes I think I don't know very much about eyes." The motherly old lady said, "Never mind, son. You're young. You've got lots of time to learn."

In the five years practically all this confusion and need for explanation have disappeared. People come here to have their eyes refracted and their glasses fitted and serviced. I rarely see a case of self-evident pathology.

A great help at first (and still is) was the reaction to my thank-you notes which I made personal letters in those days. It is really something special to be thanked for a thank-you letter. Most people are inarticulate and do not express themselves well but I have had several use just about these words, "I have referred a good many pople to a number of different doctors and this is the first time I've had a doctor thank me for it."

These were four ways of making myself known in an ethical manner: the newspaper announcements, the mailed announcements, the thank-you letters, and the little sign. An additional means that I feel was of great benefit: I made it a family rule to do all possible buying here in the county. We did not buy from mail-order houses and there were few shopping jaunts to the city.

Mr. Bass, an insurance man, had said weeks before that he wanted to be my first patient. That was a wonderful feeling—to be sure of a first patient. He called in and made an appointment for the 21st. There were a couple of blank days watching the birds and then the county jailor dropped in for a refraction. Then Mr. Arbuckle, of the other insurance firm, and Mrs. Arbuckle. By the first of February I had made eight refractions, two consultations and a number of adjustments. Another rule that I made at the start was that no work was to be done free of charge. I disliked charging a dollar for those early adjustments as I know that most of those people just came in to get acquainted, look over the office and size me up, but if they wanted any work done, they paid for it. I know that there is a difference of opinion about this but I had made so many "free adjustments" I never wanted to make another. When I fitted a patient with a pair of glasses I told him that the fee covered with the other services a reasonable amount of adjustment until the time for the next examination, which date I set. I have always disliked the mendacious, fawning idea of free service and I though that now or never was the time to get away from it. People may thank you for doing free work but in their minds they look down on you for having to do free work to attract "trade." When one of my people thank me now for an adjustment, I reply that they are welcome but the work was paid for in the original fee.

In February, the first full month, I refracted thirty-four patients, my laboratory account was about three hundred dollars, the electric bill

three, the phone bill eight, the newspaper announcements twelve, printing forty-five (letterheads, appointment cards, statements, envelopes, etc.) and postage five dollars. Of course, there were inumerable expenses incident to moving and getting settled in our new home but this is all that was spent in the office. That's not a bad start for a village of fourteen hundred, with no war-time industry of any kind. (In fact the county population was way down on account of men in the service and men and women gone outside to work in war plants.)

For my first five hundred cases I recorded some extra details and made an analysis which I believe will help me to understand my practice and which I will outline here in the hope it may be of help to others who plan a small town practice.

Of the five hundred, four hundred and twenty were supplied with lenses or glasses complete. For the eighty I did not write prescriptions, either because of pathology or because I could not improve on the prescription the patient was wearing. Because I was new in the community many people with hopeless cases thought it would do no harm to try the "new eye doctor." I have never seen as many cases of cataract as during this period. I had to be very careful as I realized that I was on trial.

Some of the country people let this slip—a number of them would get together and sort of draw lots to see who was to "make the try." The one selected would drop in, ask a lot of questions and do a lot of looking around, have the refraction made and the glasses ordered. He would wear them about a week and would then report to the group. If the report was good and the glasses "gave satisfaction" the whole group would be in shortly.

I have always been a firm believer in the "thirty-day progress report and adjustment" and I stressed this heavily at this crucial time. These country folks and some of the town ones too would want to know if I would guarantee the glasses. I had a set answer that only quacks would make a guarantee, that ethical professional men only did the best they could with the case at hand. Then I would say that to assure best results I always asked the patient to return in thirty days in order that I could review the case and make sure that satisfactory progress was being made. The reply here was often "Well, that's the same thing as a guarantee, isn't it?" One of the doctors downtown was asked if he guaranteed his glasses. His reply was, "Hell, no, you may be blind before breakfast." One has to admire his direct approach, and his alliteration was—to say the least—timely. But I do believe that this system made an early favorable impression on these people.

They had previously gone either to the small town oculists who made the refraction and had the glasses mailed direct from the laboratory or had traveled one hundred or more miles to the city where they had a chance for a better refraction but again the glasses were mailed to them. Sometimes the glasses had absolutely no adjustment—the temples and pads being just as the optician took them out of the stock. The PD's were invariably 5, 10 and even 15 mms. too wide and the temples half an inch too long. This resulted in a gesture that was common here but that I had never seen before. These glasses, of course, slid way down on the wearer's nose, and the wearer, instead of taking hold of the glasses by one or both temples and putting them up into place, poked them into place with his fore finger. Poked them right in the middle of the bridge! In the waiting room, in stores downtown and in people who came to see us, we would see this gesture time after time. To get back to the mailed glasses, the prescription for the lenses was often very accurate indeed, but the poor physical fit made the glasses unwearable or at best very uncomfortable. My little joke now when asked to mail the glasses is that I am sure I can adjust them much better than the postman can—that the postman is a very admirable character and well-fitted for his work but that he is not trained to adjust glasses. This sort of eases the tension of my refusal and then I can go on and explain that I know they want the best work possible and the glasses should be adjusted to their features and that I like to record the acuity with the new correction in place and to give them last minute instructions for getting adjusted to the new correction. Of course, in spite of all the fight I can put up sometimes, there is nothing else to do but mail the glasses. Here I adjust a sample frame or mounting out of my fitting cases to the patient's features and then when the glasses come to me from the lab, I have a system of duplicating and transferring these measurements from the sample to the finished glasses. To do this I have three measuring devices I have worked out. One measures the spread and angles of the pads. It is a long wedge-shaped device—sort of a universal nose. Another is just a simple caliper to measure the thickness of the head between the ears and the third is a protractor for measuring accurately the temple angle. For out of town people and for those that travel about considerably I try to record these three measurements with each case record because with them a duplicate pair of glasses to replace a lost or broken pair can be mailed with the assurance that it will fit properly.

One man asked me, "What optical company do you work for?" I gasped, "What do you mean?" He said, "Dr. Blank works for the Amalgamated Optical Company. I just wondered who you were with."

Dr. Blank does have all his work mailed directly to the patient from the laboratory. He charges a fee for examination, the glasses are sent Collect on Delivery to the patient, and the lab's name is all over the box. Hence the little misconception.

I will not have even repair work mailed directly from the laboratory. The work comes to me, I inspect it, use the vertometer to verify the lenses, check all the screws to see that they will not work loose and remail the glasses in a clean new box. I do not mention any laboratory's or manufacturer's name in the office and I do not call by name any lenses, mountings, or frames. Looking back over the five years, I believe this policy has helped a little to add to a professional atmosphere.

In making the analysis of the first cases, I asked a few questions as to where they had had their previous work done (not the doctor's name, just the locality) and what had brought them in to me. I could tell that many people did not like these irrelevant questions and if they evaded an answer, I did not persist.

Referred by friend or relative	230	
Personal or business friend of mine	35	
Received announcement card	30	
Saw announcement in paper	12	
Referred by physician or dentist	5	
Neighbor	15	
Saw sign in yard	1	
No reason (didn't want to say)	172	
		500
Male	170	
Female	330	
		500

There is something wrong here, and it is not with my figures. Women are thought to suffer more from asthenopia than men but not in this high proportion. In some city practices I believe the figure is as high as three or four to one. I do not know the reason elsewhere, but I believe that here in Greenbrier County the missing men are wearing ready made glasses. They do not like to wear glasses at their outdoor work and for their few minutes reading or book work, they patronize a chain store which sells glazed goods.

Where did these patients come from?

Town of Lewisburg	109	
Rest of Greenbrier County	324	
Monroe County (where I sent the announcement cards)	15	
Pocahontas County (announcement in paper)	35	
Other counties (mostly people from Charleston)	17	
		500

It would be impossible to make a living in the town alone. This

figure of 109 to the town population is much greater than the balance to the county population undoubtedly because these people were closer and found out earlier about my services. The percentage in favor of the outlying sections would be much greater now.

White	470	
Colored	30	
		500

A pitiful comment on the economic status of colored people. It has been my experience that their eyes have a greater percentage of refractive errors than white people and that these disturbances are greater and more complex. I have also thought that the eyes of colored people become presbyopic earlier than those of whites.

Cash	452	
Credit	48	
		500

When anyone asked if I did credit work, I replied in the negative but often added that if it was necessary to do the work right away and that full payment of the fee was impossible, I could give them a little time. Most of the 48 credit accounts were substantial citizens who asked me to send the bill, often without asking the amount. Sometimes the worldly matter of payment was not even mentioned. In these cases I waited sixty days to send the statement and the check always came in the next mail.

Who were these patients?

Farmer	51	
Businessman	43	
Unskilled labor	43	
Skilled labor	46	
White collar	28	
Miner	3	
Professional	35	
Student	56	
Housewife	171	
Political	12	
Retired	9	
Soldier	3	
		500

Of the housewives, probably one hundred were farmers' wives. There was no wartime industry here to boom the economic picture but of course the farmers were getting more for work than ever before and everyone was working who could work.

The Greenbrier Hotel at White Sulphur Springs had been turned into Ashford General Hospital. I had the three soldiers from there for refraction and many soldiers for adjustments, etc., but I got a lot of

good refractive work from the staff of the hospital. These were professional people and the civil service administration workers. They had a medical refractionist at the hospital and he wrote prescriptions for glasses for everyone: soldiers, staff, civil service workers, relatives of same, friends of same, and friends of friends of friends. They did not have any optical unit to fill these prescriptions and I suppose the soldiers' prescriptions were sent to some other hospital where they could get their GI glasses. The closest optician was one hundred miles away so the results were confusing, to say the least. A good bit of pressure was put on me to fill them but my answer was always the same—that my work was writing prescriptions, not filling them, and also that Captain Blank could fill them just as well as I could. At first this was hard for me to turn these people away but after doing so to a brigadier general, the rest came easy.

At first I saw a good many prescriptions from civilian EENTs. The more prosperous citizens would go to the city and as a great favor to the newcomer, would bring the prescription home for me to fill. This was an unhappy business but I stood firm (I do not have a single outside prescription in my files) and I suppose the word got around, as I am not troubled in this way any longer. One incident hit me pretty hard. One of the most prominent families brought the matriarch in. They were very friendly and decent in welcoming the newcomer but the hitch was that they had a prescription for the old lady's new glasses. I have since had a few refractions from this family, not very many, but I know the alternative would have been that I was to be an optician and fill prescriptions for all of them.

As there had never been an optometrist in the county, I had to expect a lot of confusion. To these people, an eye specialist was an eye specialist, and they were not accustomed to drawing fine distinctions. But the word got around quickly by the grape vine. In one way, this is rather nice. I do not have other men's precedents to hamper me and I can set my own standards.

What sort of visual aids had these patients before coming to the writer?

Never wore glasses	114
Wore ready made glasses	23
Fitted by local oculist	40
Fitted by distant oculist	141
Fitted by distant O. D.	23
Refused to answer	159
	500

I was reluctant to ask this question and the patients were hesitant in answering it as evidenced by the "Refused to Answer" section.

Undoubtedly, a large percentage of this section have also used ready made glasses. The physicians and the ready made glasses had supplied most of the service here in the Greenbrier Valley.

I do not believe I have hurt the local EENT men. One of them is as busy as ever, if not more so. After the War his son, who served in the Army Medical Corps, spent some time in an EENT hospital in a nearby city and has now joined his father here in town. They built a new building of their own and appear to be doing a very fine job. We have the most cordial relations and I feel that I am fortunate to have them here to refer pathology cases to. They are very decent about reporting on these cases and in referring them back to me when the disturbance is cleared up.

The professional and business people have been more than nice to me. Some of them called at the office to bid me welcome and all have been helpful in referring work. This unearned good will was a constant source of wonder to me. I kept referral trees in those early months before I got too busy and they showed me where the work was coming from. A young girl who worked in a local store here was one of my first patients. Her home, to which she went on Sundays and holidays, was at Renick which is just a little village in a farming community. Today, this is one of my best sections and I can trace most of the work to that girl.

I was made unhappy by a local physician advising a patient, who had told him she was coming to me, "If I were you, I do not believe I would go to *Mr.* Collins. I do not believe he is properly prepared or equipped to examine eyes." The patient came anyway and since then the doctor has changed his mind, as he has sent in his wife and a number of other patients.

The dentists have been very helpful from the start in referring patients and in advising me of local customs and conditions. Some of them are very busy and are booked up several weeks in advance. Even so they will leave a little time open in the middle of each day for inevitable drop-ins. These are generally people from remote sections without telephones. A man might start to plow in the morning, have a breakdown with his tractor, and have to come to town for a new part. His wife will decide this is her chance to have her eyes cared for and possibly will contact a couple neighbors that this is a chance to get to town. When they do think to write for an appointment, they will often beat the postal card to town. And always they will set a date and not allow enough time to advise them if it is already taken. One of my dentist friends got a card in the morning mail saying, "Dear Doctor, I will be in today (same day) for an appointment at one o'clock. I will

bring four friends with me." That's being real helpful to the doctor, also to his ulcer and hypertension.

An optometrist's work in a farming community is very seasonal and cycled. I do not have it reasoned out yet—why some months are good and others slow. July, August, September and October are best. March, April, June and November are medium and the others apt to be slow. Work stops altogether after a heavy snow fall.

Being booked ahead is a shock absorber. It can even out the months very well. In busy times the doctor is three weeks behind, in slow times, only three days, but I do not have that much work. I have found out that spring is the farmers' busiest season. On bright beautiful days, I will have no one but local people but on stormy days that are not fit for patients to be out, my office will be swamped. In the fall and winter, bad days will be quiet. In the summer, the farmer is all caught up with his work and he can sort of sit back and watch the crops grow and the sheep and cattle get fat. This "lay by time" is the season of the county fairs and family reunions and is one of my busiest seasons.

I like to take time to visit and get acquainted with my patients. This helps as a practice builder but more in making the work pleasant and the time go fast. I am an amateur photographer and my pictures are all over the office walls. Identifying these scenes has broken the ice many a time and made it easy to get started on a friendly basis. These folks are real sportsmen. We talk hunting and fishing all year long. You can see notes like these on my case records, "deer hunter—got a ten-point buck on Cranberry," "bear hunter—is related to the Skaggs," "champion turkey caller," "pike fisherman."

A man from Alvon (this is back country) and I were visiting and he told me, "You know we were taking up a collection at the meeting for these missionaries and I was passing the basket and I came up to one feller and he said he didn't believe in missionaries and I said, go right ahead—put a half dollar in there and he said he thought that we needed the money just as bad in this country as they did in foreign lands and I said, well, if you're a heathen, take one out. And you know that feller did! He took out a half dollar and I had to stand good for it."

The first year I did not have any office help at all. Since then I have had a succession of young women. As soon as I get one trained to my ways and needs, she gets married and has a child or goes away to school. I like working alone but I believe an assistant is essential to an optometrist's office for these reasons:

She enables him to do better work by preventing interruptions during refraction.

She enables him to handle more people in a day.

She makes possible closer adhesion to an appointment basis.

She allows him to take days and half days off without loss of practice.

She takes care of bookkeeping, filing, and necessary records.

She assists with the routine part of orthoptic work.

She takes care of minor repairs and adjustments.

She more than pays her salary with thank-you notes and other good will correspondence.

And last and most important—people (at least these people) have more respect for a doctor with an assistant. They must think that if he does not have an assistant it is because he cannot afford one, that he cannot afford one because he is not busy, that he is not busy because he is not expert in doing his work.

On a busy, smoothly running day, I try to keep people coming one at a time. Refractions on the hour, two in the morning and two early in the afternoon. Allow forty-five minutes for the examination and refraction and fifteen minutes in between for an adjustment or two, or just a rest period. I always leave one o'clock open for drop-in patients and save late afternoon for orthoptic work and getting the orders ready for the laboratory.

A word about orthoptics in a country practice. I have always been keenly interested in orthoptics and in Charleston it took at least a third of my office time. What I find here is that the need is as great as in the city. There are squints, amblyopias, phorias, and suppressions that need to be corrected but the distances involved make it difficult to take any but local cases. I always have one or two that come from a distance but this is hard for the patient and hard for me because they so often are unable to get here because of weather, car trouble, and other exigencies. On the other hand a fortunate orthoptic case of a daughter of one of the school officials gave me a start with the faculty and students of both schools that would have taken years of ordinary practice. I have been trying a little home orthoptic training as recommended by Dr. Louis Jaques. This may be a partial solution of the problem.

I have to go to great lengths to help people out when they have broken or lost glasses they are dependent on. I glue them and patch them up in all kinds of ways to hold them until we can get the work back from the laboratory. This takes three and four days for even rush work. Often I say, "This is the last time I am going to help you out of this fix. I am ordering you an extra pair." Once this backfired. I ordered an extra pair for our grocer. When they came in he said, "Just

hold onto them until I need them." Of course I acquiesced and the first of the month I sent him a bill. Then statement after statement until a year had passed. I wrote him a note asking him to come get his glasses but he did not come. So I asked Mrs. Collins to get the groceries elsewhere until further notice and it took him two months to catch on.

I do not let people rush me with my work and I try not to rush the laboratories. On the average I am ready to adjust the glasses seven days after the refraction. If they come back from the laboratory early I hold onto them until the week is up. This is on the theory that the public respects the optometrist who takes his time and who believes that important work should not be rushed. I have heard people say, "These glasses I got from Dr. Blank could not be any good. He had them ready for me the next day." The work is not promised at a certain time but I tell the patient I will let them know when I am ready to adjust the glasses. I do this by phone when possible, in order that a time may be set, otherwise a form card is mailed.

To sum things up: I believe the most important thing is the choice of the small town. Go by the county population or that of the trading area and not by that of the town itself. Choose a town where the need of an optometrist is evident. The War Production Board verified my choice. They sent an investigator up here who asked many of the prominent people, "Do you need an optometrist in this town?" A good man to see first would be the local postmaster. He knows thoroughly the whole situation and would give free and impartial advice.

I know I did a lot of wishful thinking and rationalizing in my choice. I liked the town first and then made the reasons fit. As a youth I had hunted and fished the whole Greenbrier Valley and I could not see any other place. Anyone I would go to for advise would say, "Too small, way too small. No industry, no payroll, no nothing!"

If you move into a little town where another optometrist has already established his practice and there are just enough patients for one, you make things hard for him and yourself too. You will both be on half rations. Choose a self-sufficient town that is the center of activity for the surrounding area and not a satelite of a nearby city. Choose the kind of people you like to work with: farmers, factory workers, miners, whatever type you like.

West Virginia publishes a Blue Book available through political sources and in public libraries. This gives a world of information concerning population, counties, towns, industries, etc. I expect many other states do the same. If not, I am sure the necessary data could be

secured at the statehouse. Then of course our OPTOMETRIST'S BLUE BOOK supplements this.

After choosing a town, the next thing is to make yourself part of the community. Never act as if you were longing to get back to the bright lights and many diversions of the city. You will find, once you get adjusted, that there are many compensating factors on the quiet side. Take a modest part in all community enterprises as opportunity offers. This means service clubs, Red Cross, PTA, Boy and Girl Scouts, Civic Music Associations, Amateur Theatricals, etc. Be careful not to push in, just take them as they come.

In picking your street address, if the office is to be in connection with the home, be sure to choose a location that the country people can find. Dead end streets are to be avoided. Check with town officials on zoning restrictions.

Having an office at home is a mixed blessing. The advantages are that it saves a lot of going back and forth and it saves on overhead. Rent is ordinarily the expense next greatest to laboratory supplies and its elimination makes a considerable saving. On gas, coal, water, and cleaning I deduct a percentage from the total house bills. The electricity is on a separate meter for the office. I believe I have the lowest overhead possible.

The big drawback is that the public takes advantage of my being at home after office hours. It was terrible at first: these naive people would come before breakfast, at lunch time, at dinner time, after dinner, on Sundays and on holidays. If I would object, it was, "Well, you see, I work." (My stars, man, what do you think I do?) or "I knew it would just take you a minute and I'm sure you'd want to help a neighbor out." If I would go out on the porch someone would be sure to see me and want some little thing (always just a little thing) and in the evenings they would look in the window of the living room and see me reading or playing bridge and then ring the door bell and say, "I saw you weren't doing anything and thought you wouldn't mind. . . ." My first instinct was to fly in a rage and once in a great while I did, but ordinarily I would hold back on the apoplexy and smile and be obliging and polite.

This couldn't go on forever and I searched out an inaccessable little acreage on the river and built a log cabin. Eight months of the year we are at the cabin weekends, holidays, and Wednesday afternoons. I have a great time playing at farming, fishing, shooting, growing Christmas trees, and watching birds and animals—and of course photographing everything. The folks still come at all hours but I

do not mind nearly so much as I have this hide-away where I can be safe occasionally.

This whole picture, however, is getting brighter. There are not nearly the number of after hour demands that there were at first. One reason is the continuous campaign that I wage for making appointments. In one of the weekly newspapers after another I run one-inch professional cards with just the name, "optometrist," and "for appointment, call 256." This is reaching a number of people and of course we are stressing appointments every day in the office. Another thing—at first I had a good percentage of poor, distressed, under-privileged people. Now the quality of my practice is improving all the time and with this, the patients willingness to cooperate with me. I am consciously charging fees that are higher than those of the oculist downtown and it is possible they are getting the less fortunate people.

We try to concentrate all evening work on Thursday evening. When someone has to see me after hours we say, "That's just fine—Thursday evening." Make the appointment before they have a chance to argue.

I have heard of doctors of different professions having their office at home with the waiting room in their living room. To me this would seem an intolerable situation. It would mean an end to home and family life and it could not possibly last. Either the family or the practice would crack up. My system with the house on a corner and the office entrance from the side street is not bad and has an advantage of plenty of parking space down this side street.

A farmer from the northern end of the county was in to see me about some work and as I had fitted his daughter with some rather complicated lenses, I inquired as to her well-being.

"Doc," he said, "I just can't bear to tell you. It's just laid heavy on me that I was the one that sent her in for those glasses. Pore Effie! She came home that evenin' just a lookin' sa purty and a-feelin' so good and a-seein' so good with her new specs. She got all fixed up with that purty new dress with the flowers on it and come down the stairs with her eyes just a-sparklin'.

"Doc, with them spectacles, she got her fust good look at that 4F that's been a-sparkin' her for nigh on three years. An' Doc, it was too much for her. She just hung her head and crept back up the stairs. Pore Effie."

John T. Collins, OD,
Lewisburg, West Virginia.

INSTRUMENT REVIEW

THE OPAQUE PROJECTION MAGNIFIER FOR SUBNORMAL VISION. The Franklin Institute, Philadelphia, Pennsylvania.

The opaque magnifier is a device designed to magnify printed material five times. The optical system consists of a lens and a number of mirrors which produce an image of the print in the same direction as the actual printed material itself. Thus, moving a book or a printed page from left to right will also cause the image on a screen to be moved from left to right.

The magnifier is approximately 12 inches high, 15 inches wide, and 18 inches long. It is light enough in weight to be easily carried but does necessitate the use of an electric outlet for illumination of the printed material. The screen of the magnifier is of such design so that maximum advantage is made of the light composing the image.

At the present time it is hoped that the instrument can be manufactured and made available for a cost of $75.00 or less. Plans for manufacturing the instrument in sufficient quantities for general distribution and sale have only recently been completed and for this reason they will not be available for purchase probably until the latter part of this year

V. J. ELLERBROCK

STEREOSCOPIC CARDS FOR THE DETECTION OF ANISEIKONIA. Dr. H. E. Pine. New Era Optical Co. $2.75.

This is a set of five 7"x3⅜" flat white pasteboard cards imprinted with paired black-on-white patterns to be viewed in a conventional type stereoscope. The brief instructions included with the set suggest that the tests will detect aniseikonia in amounts that may be corrected by reasonable modifications of sphere and cylinder power. The five tests are said to be arranged in progressively critical order of ability to detect the presence of aniseikonia.

Each half of test card *A* consists of a central cross and a peripheral outline of a square. Aniseikonia is to be identified by the inability to fuse the peripheral outlines satisfactorily. Test card *B* makes use of a large central spot and peripheral concentric circles in like manner. Cards *C*, *D* and *E* employ large black central spots for central fusion with variations in peripheral design differing in the two halves. The observer has to make peripheral judgments of small dots in circles, in squares, etc. to establish presence or absence of aniseikonia.

In criticism it should be pointed out that the patterns for tests

A and *B* do not lend themselves readily to judgments of image size differences because of induced stereopsis and induced suppression caused by the retinal disparity of different sized images. In all five tests the observer will be unable to make valid judgments if fixation disparity is operative, as it will be for most cases viewing these cards through the ordinary stereoscope, since the paired patterns have a center-to-center separation of only 60 mm. In card *A* there is a design error in the construction of the square equivalent to one per cent aniseikonia in the vertical meridian. In card *D* the two patterns are out of allignment by about one and a half degrees, a factor which may or may not be important depending on the amount of cyclophoria the observer may happen to have.

H. W. HOFSTETTER

TRANSACTIONS OF THE AMERICAN ACADEMY OF OPTOMETRY

A department devoted to announcements, reports, appointments, organization data, news, professional problems and ideals, as these relate to the Academy.

CHAPTER ACTIVITIES

BRITISH CHAPTER

The annual meeting of the British Chapter of the American Academy of Optometry was held by courtesy of the Association of Optical Practitioners in the Council Room at Brook Street, London, on March 19.

For the next two-year period the following officers were elected: President, A. E. Turville; immediate past President, Lord Charnwood; Vice-President, K. Clifford Hall; Treasurer, Miss I. M. Whitney; Extra member of Committee, Euin Steele (re-elected); Secretary, E. Bateman (re-elected).

After all business matters had been completed at 7 p. m. Mr. S. Black presented a paper on "An Approach to Road Accidents from the Visual Aspect," which covered this topical subject comprehensively.

SOUTHERN CALIFORNIA CHAPTER

Prof. Harry Jankiewicz was the speaker at the March 13 meeting of the Chapter. His subject was the "Blue Sclera" which was illustrated by colored slides and graphs. The paper dealt with the hereditary possibilities of this condition.

Dr. Harry Fuog was the speaker at the April 10 meeting. His topic was "Resolving Clinical Optometric Problems." Dr. Hugo E. Apel, Chairman of the Chapter presided at both meetings.

CURRENT COMMENTS

Terry Judith Parkins
Editorial Assistant

Optometrists will confer a favor by sending news items of general interest for this department; such as relate to new instruments, clinical techniques, education, visual health and optometric legislation and organization.

AMEND ARMY-NAVY MEDICAL CORPS ACT

The Committee on Armed Services of the House of Representatives at our National Capitol has H.R.2224 now before it for consideration. This bill has to do with the Army-Navy Medical Services Act and proposes among other things to amend this act as follows:

"Section 209(a). The authorized strength of the Optometry Sections of the Medical Service Corps shall equal one commissioned optometrist for each 5,000 authorized strength of the particular arm of service (Army, Navy, or Air) which such Corps serves. This increased authorized strength shall be obtained within three years from the effective day of this act. Section 209(b). Application for transfer to the Optometry Section by those persons now serving on active duty in the Armed Forces who are eligible and qualified for commissions therein shall be given prior consideration in filling the vacancies hereby created."

This looks like the type of a Bill optometrists should support.

CAMPUS NEWS

The Indiana Optometric Association has announced a new campaign for $75,000 for funds to be used during the next three years for special equipment for the optometry course at Indiana University. The Indiana University Foundation will supervise the fund raising program among optometrists, and during the first month of the drive more than $30,000 has been pledged.

Dr. Raymond Roy, optometrist, Portland; Dr. A. O. Pitman, physician and surgeon, Hillboro, and Dr. Horace Miller, dentist, Portland, were speakers before the Student Optometric Association, Pacific University and the Omega Epsilon Phi, optometric fraternity during the past several weeks.

Pennsylvania State College of Optometry, Philadelphia, has announced that it will enter into agreements with interested State Optometric Associations to enable these associations to *each* offer two scholarships, one four-year full tuition and one four-year one-half tuition for the 1954-1955 and the 1955-1956 academic years. These

scholarships have a monetary value, each, of $2,200 and $1,100 for the four academic years. Applicants for these scholarships must have completed the required two years of pre-optometric college work and rank in the upper two-fifths of their pre-optometric classes, and the scholarships shall remain in force only if the applicant maintains for four years a scholastic standing in the upper half of his professional training at Penn State. Members of the immediate families of optometrists are not eligible for these scholarships.

The annual Practitioners Educational Clinical Conference of the Pennsylvania State College of Optometry will be held June 8 through June 12. A large enrollment is expected as usual. Registrations should now be made through the college registrar.

The College of Optometry of Ontario, Toronto, will conduct a special course of advanced study for optometrists. This five-day course will deal with the visual problems of children. The dates are June 8 through June 12. The Optometrical Association of Ontario will cooperate. Guest lecturers will include Dr. Lois Bing, Dr. Darell B. Harmon, Dr. Francis L. Ilg, Dr. T. R. Murroughs and Dr. E. J. Fisher, dean of the College. Optometrists wishing to enroll should send their applications to the College of Optometry of Ontario, 140 St. George St., Toronto, Ont., Canada.

Northern Illinois College of Optometry, Chicago, has announced that its Board of Trustees has approved a proposal that the officers of the college purchase a new site for the college in the Chicago area in the immediate future.

Chicago College of Optometry has announced that their new building program in Technology Center will get under way on or before May 15. The new building, a two-story structure architecturally similar to other buildings on the campus of Illinois Tech will contain something more than 20,000 square feet. The college has announced that it has acquired a three-story building adjacent to the newly planned building which will be remodeled into a clinic and visual training department on the new campus.

Dr. Eugene W. Strawn, Freeport, Illinois, Chairman of the Chicago College of Optometry Alumni Association presided at a planning conference of the association at the Belden-Stratford hotel, Chicago, April 19-20. Optometrists from seven states attended. The activities of the alumni group in the student procurement program were reviewed.

Dr. George N. Jessen, Chicago, spoke before the Council on Ethics and Professional Advancement of the Chicago College of

Optometry at its April meeting. His subject was Building an Optometric Practice.

The Los Angeles College of Optometry announces a special review course for those optometrists preparing to take coming State Board Examinations. These individual special courses covering 13 special areas of optometric training will be given at the College, June 1 through July 10. For tuition, topics and specific dates for individual courses, applicants should contact Dr. Monroe J. Hirsch, Los Angeles College of Optometry, 950 W. Jefferson Blvd., Los Angeles, California.

The School of Optometry, The Ohio State University, Columbus, announces that special five-day clinical courses will be given during the summer quarter. These courses will cover (1) advanced practical optometry, (2) orthoptics, (3) contact lens fitting, (4) aniseikonia, (5) physiological and psychological optics. Several of the courses will be repeated on different dates between June 29 and July 31. Each class is limited to 10 in number and living quarters are provided. Any optometrist may register for one or more of the courses. Applications should be sent to Dr. V. J. Ellerbrock, School of Optometry, The Ohio State University, Columbus, Ohio.

A.O.A. ANNUAL MEETING IN ROCHESTER

The annual meeting of the American Optometric Association will be held at Rochester, New York, June 21-25. The headquarters hotel will be the Seneca. A major feature of the four-day program will be the tours which have been arranged through the manufacturing plants of the Bausch & Lomb Optical Company; Shuron Optical Company; Art-Craft Optical Company; Continental Optical Companys Rochester frame plant and the Rochester Optical Company. Delegates may register for the tours at the registration desk of the convention. Dr. Murray I. Blanchard of Rochester will be in charge of the tours.

The Rochester Museum of Arts and Sciences has arranged a large life-size exhibit depicting a century of optical progress for the A.O.A. delegates. Fashions and Optics will be on display covering the period of the last 100 years. This special exhibit is in honor of the founding of the Bausch and Lomb Optical Company in 1853.

NEWS BRIEFS

According to Dr. A. A. Krumholz the Northeastern Pennsylvania Optometric Association approved the A.O.A. Rules of Practice at its Spring meeting. . . . Dr. J. Paul Blankemeyer of Cincinnati has been appointed visual consultant to the Diocese of Covington, Kentucky, parochial school system. . . . Dr. Irving Filderman, Memphis, spoke

before the subnormal vision clinic held at Atlanta, Georgia, March 29-30. Twenty-four subnormal vision patients were examined and refracted during the two-day clinic period. . . . Dr. Elmer Soles, Director of Public Information of the A.O.A. supplied state association officials with a program devised to stimulate interest on the part of the college undergraduate students in enrolling in optometric professional courses. . . . The Department of Public Information of the A.O.A. has had reprinted the article "Danger, Blind Man at the Wheel" from the publication CARS. . . . Dr. Ernest H. Kiekenapp, Secretary of the A.O.A. has just published the third edition of the Manual of Ocular Tests Required by the Armed Services and Government Agencies. This handy compilation of this material should be in every optometrists office. The price of the monograph is $3. Orders should be sent to the JOURNAL OF THE A.O.A., 404 Wilmac Building, Minneapolis 2, Minnesota.

BOOK REVIEWS

VISUAL ANALYSIS HANDBOOK. Leo Manas, M.A., O.D. Published by the Professional Press, Chicago, Illinois. 72 pages. Illustrated. Board Covers. $3.00. 1953.

This book is, as it is so aptly named, a reference book for the optometrist who is interested in the functional approach to the visual problem. It is divided into five chapters and a glossary.

The first chapter briefly states the philosophy of the functional approach and contrasts this with that of the mechanistic philosophy. Several diagrams and charts graphically illustrate the points needing emphasis. A well organized summary gives an excellent review of the chapter.

The second chapter carries the reader into the functional concept of the visual pattern, the accommodation-convergence pattern and outlines the functional concept of exophoria and hyperopia. The reader can readily follow the philosophy of the author, and his description of the visual functioning leads the reader into the third chapter, "The Visual Problem."

This chapter states the reason we have visual problems, the developmental aspects and types of visual problems. Some extremely good charts illustrate the adaptations and development of a visual problem. The more severe types are briefly discussed and the tests used in the analytical routine are listed.

In the fourth chapter, the method of making each test is given in detail including instrumentation. A brief summary after each test outlines the salient points.

Chapter five is devoted to the mechanics of case analysis. The chaining, informative sequence, typing and deterioration of a "B" type Case. The Differential diagnosis of a "C" type case and the method of handling. The nine laws of lens application are listed.

Two "B" type cases are presented—one an organized presbyopic hyperope, and the other a disorganized myope. Questions and answers regarding the two cases complete the chapter.

A much needed glossary ends this excellent handbook which reviews Extension Program work. This text should be in the library of every one using the functional approach to visual problems.

H. C. SHERRATT

CORRESPONDENCE

DO CONTACT LENSES OFFER A CHALLENGE?

To the Editor:

The beginning of a new year does perhaps warrant a reflection upon the results achieved over the past twelve months in the prescribing and fitting of contact lenses. Distinct advancements have been recorded. These, in turn, were influenced by the conclusions reached on the previous years' investigations and subsequent reorientation in technique. An up-to-date survey of the present position may therefore prove helpful to the optometrist when called upon to give advice or information to patients.

Unlike earlier days, when no promises whatever could be made to prospective patients, it can be said today with reasonable certainty, that the wearing time desired by the individual can be achieved in nearly every case. Looking back upon earlier teaching and, rightly, the then cautionary approach taken, this may sound a forceful statement. It should rather be looked upon as a challenge. Any desired tolerance, with one or two provisos, is now within our grasp with the knowledge at hand. An admittance of less satisfactory standards must largely be looked upon as a failure to realize what now proves possible.

Is it not a crime for patients, in the present day, still to be fitted with deep fluid contact lenses? The whole technique has resolved itself into three distinct groups of lenses, viz., minimum clearance sealed, ventilated and corneal lenses. These give us the tools to do the job

according to the patient's requirements and individual circumstances. With these it is the practitioner's duty to satisfy the patient's needs. The old diagnosis of classifying patients as unsuitable can hardly hold true today as there is indeed hardly anyone who cannot be satisfactorily fitted. That, briefly and perhaps over-simply, is the progress which has been made in the past few years. The element of chance has been eliminated. Despite all this, there are problems and variations met with in nearly every case. As already mentioned on previous occasions, restricted daily or occasional wearing periods for occupational, vocational and cosmetic reasons present no problem whatsoever. All day toleration, where desired, has become the rule rather than the exception. We must, nevertheless, recognize our limits. Physical exhaustion of the eye is a typical example. It may be caused by Sattler's Veil, discomfort or irritation, to name only some of the symptoms possible.

Sealed contact lenses may offer a toleration of say, eight, ten or twelve hours without undue mucous or sebaceous secretions. An extension in wearing time for the rest of the waking hours is a probability with ventilated or perforated contact lenses. It is an interesting phenomenon that about fifty per cent of patients are thus enabled to achieve this increase without much difficulty. The remaining fifty per cent are troubled with objectionable mucous discharge after their original limit of physical exhaustion, as experienced with sealed lenses, e.g., after the said eight, ten or twelve hours. To obtain relief when the excess secretion is more than of a temporary nature, is usually difficult. Atmosphere and temperature variations can equally be demonstrated to exert like influences. Not until such time as investigations conducted on this problem will add fresh light to our existing knowledge, can we conquer nature's aversion to such a foreign body temporarily implanted onto the ocular tissues. Here is presented a very real and urgent field for research, closely allied to the recent increased use of intra-ocular implants.

It would be inadvisable to say that all the problems met with in this field have been solved. It is doubtful whether they ever will, dealing as we do, with the "human element." The performance of contact lenses necessarily depends not only on conscientous work by the practitioner, but also on the perseverance of the patient: without these, recent advances cannot be translated into practice. Despite the conflicting reports circulating amongst members of the public and the profession, it would be safe to affirm that patients in the present day can confidently anticipate the wearing periods they desire.

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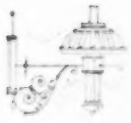

Within the span of a single lifetime, man has gone from the oil lamp and gaslight to a world where a good part of the night has become, in effect, an extension of daytime. There has occurred a tremendous increase in the use and intensity of artificial illumination.

The major impact of this phenomenon upon the eyes occurs, not because the illumination is excessive in amount, but because the photopic mechanism of the eyes is kept functioning for hours longer each day than is natural.

Eyes overworked and overexposed to light *need* the benefits of absorption to reduce modern lighting to a level where the normal light-regulating mechanism of the human eye can take over. This consideration is just as important to the visual well-being of the individual as the prescribing of spheres, cylinders and prisms.

The *type* of absorption is important, as well. Most absorptive lenses are selective in their absorption. By common usage, the inconspicuous flesh-tint is most popular. In this field, Soft-Lite — *and Soft-Lite alone* — provides the type of neutral absorption most like that afforded by white crown lenses. Soft-Lite glass, made by Bausch & Lomb, is designed for normal, everyday wear to absorb glare and excess light.

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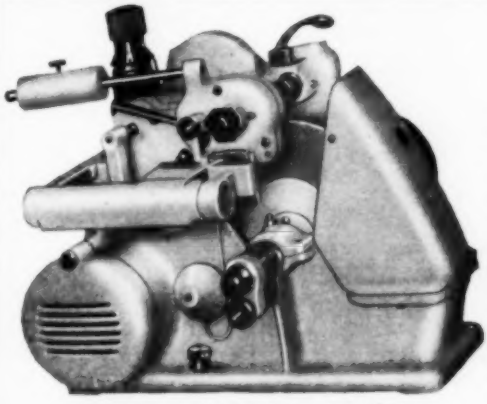

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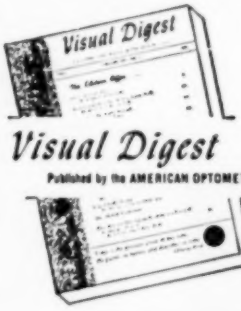

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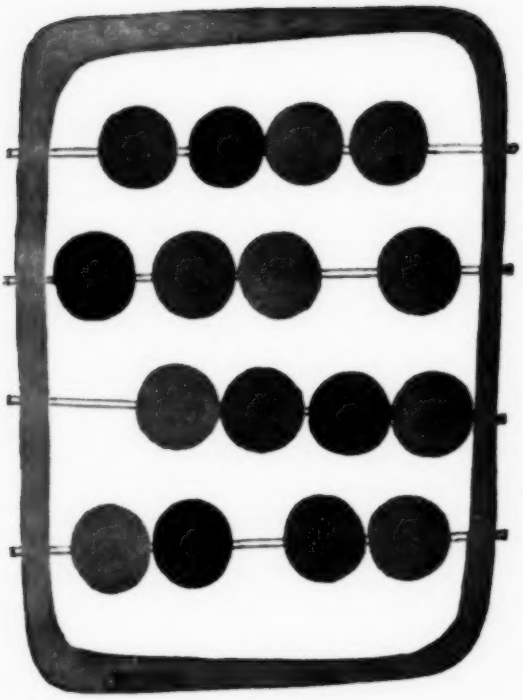

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